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ABSTRACT

This teacher's guide was designed to be used with a one semester course required during the seventh grade to meet the graduation requirement for health instruction. Broad topics included are: growing and maturing; achieving personal health; food for growth and health; addicting, habit-forming, and other harmful substances; community health; and safety and first aid. The format of the guide correlates concepts, activities and information, and resources. The unit on addicting, habit-forming, and other harmful substances is designed to meet the California requirements for teaching the effects of narcotics, dangerous drugs, and alcohol. (BR)

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EXPERIMENTAL

ED035554

HEALTH

An Instructional Guide

JUNIOR HIGH SCHOOL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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LOS ANGELES CITY SCHOOLS
Division of Instructional Planning and Services
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FOREWORD

One of the major purposes of the educational program in the Los Angeles City Schools, as stated in Point of View, is "that each pupil ... develop and maintain physical and mental health." To achieve this purpose, a coordinated program of health instruction and health services and a healthful school environment are provided for pupils to:

Gain scientific health knowledge
Acquire intelligent health attitudes
Develop effective health practices

Health, An Instructional Guide, has been prepared to assist in accomplishing these objectives through helping junior high school teachers to meet the revised graduation requirement for health instruction. This revision provides that one semester of Health is to be offered as a required course during the seventh grade. This course meets the State requirement for the teaching of first aid and the effects of narcotics, dangerous drugs, alcohol, and other harmful substances.

Opportunities for a variety of health education activities also are available in related subjects and in other phases of the school health program. The total program reinforces and supplements the efforts of the home and the community to help each child to attain his maximum health potential--physically, mentally, and socially.

This publication supersedes Health 1 and 2, Teaching Guide for Junior High Schools, Experimental Pub. No. X-18, 1963, and Health Science, An Instructional Guide, Pub. No. X-74, 1967.

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Blanche Bobbitt (retired)
Otto E. Buss
Everett Chaffee
Frances Chapman
Austin Dixon (retired)
Julia Goodenough
Anthony Grande
Ruth Gregorius
Jack Hastings
Elizabeth Hopkins
Lawrence E. Houston
Robert E. Kelly
Joseph J. Langan
Randolph Logan
Gerwin Neher
Edwin Olmstead
Attillio Parisi (retired)
Paul S. Paulsen
Harriett B. Randall, M.D.
Margaret Reinhard
Evangeline Reynolds (retired)
Jerrold Russom
Chrystle Ryle
Isabel Voyen

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Ruth Serwillo
Richard Gabriel, Chairman

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RUTH RICH
Supervisor, Health Education

ALFRED T. CLARK, JR.
Director, Secondary Curriculum

FRANK M. HODGSON
Assistant Superintendent
Instructional Planning Branch

APPROVED BY ASSOCIATE SUPERINTENDENTS:

OTTO E. BUSS
Division of Secondary Education

MILDRED NASLUND
Division of Instructional Planning and Services

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TO THE TEACHER

The seven resource units implement the course of study for Health at Grade Seven. Each unit contains an overview of the concepts to be developed, lists of suggested activities and reference materials, and an explanation of suggested evaluation procedures.

Obviously, each unit contains more material than can be included in the suggested time allotment. Therefore, teachers are encouraged to select and adapt from the wide range of activities suggested those which best meet the capacities and interests of pupils. Subject matter designated as optional should be reviewed with the school principal for guidance and direction.

The following units of instruction and suggested time allotments have been designated for this course:

UNIT		TIME ALLOTMENT (in weeks)
I.	Introduction to Health	1
II.	Growing and Maturing (Optional Section)	3 - 4
III.	Achieving Personal Health	2 - 3
IV.	Food for Growth and Health	2
V.	Addicting, Habit-Forming, and Other Harmful Substances	3 - 4
VI.	Progress in Community Health	2 - 3
VII.	Safety and First Aid	1 - 2

OUTLINE COURSE OF STUDY FOR SEVENTH-GRADE HEALTH

UNIT I. Introduction to Health (1 week)

A. What is health?
B. What are scientific foundations of health knowledge?
C. What are the health related-sciences?
D. What are the methods of the health scientist?
E. Who is the health scientist?
F. What are the tools of the health scientist?
G. What are the purposes of health appraisals and surveys?

UNIT II. Growing and Maturing (3-4 weeks)

A. In what ways do boys and girls grow and mature?
B. What is physical growth?
C. How does human development begin?
D. At what age do boys and girls grow most rapidly?
E. What are the growth changes which occur during adolescence?
F. How do the maturational changes which occur in boys and girls during puberty provide for the continuation of human life? (Optional)
G. What are some of the emotional-social changes which occur during adolescence?

UNIT III. Achieving Personal Health (2-3 weeks)

A. What may be inferred about a person's health from his personal appearance and performance of various tasks?
B. In what way does dental health contribute to the appearance and optimum function of the individual?
C. In what way does the skin contribute to the health and optimum function of the individual?
D. How does posture contribute to the appearance and optimum function of the individual?
E. How does eye health affect the well-being of an individual?
F. How does ear health affect the well-being of an individual?
G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum function of the individual?

UNIT IV. Food for Growth and Health (2 weeks)

A. Why does the body need food?
B. How is food changed into a form that can be utilized by the body cells?
C. What amounts of the basic nutrients does a person require each day?
D. Why is it important to develop sound nutritional practices?
E. What factors should be considered in the selection of foods?

UNIT V. Addicting, Habit-Forming, and Other Harmful Substances (3-4 weeks)

A. How do depressant, stimulant, and hallucinogenic substances affect behavior?
B. Why do people misuse drugs and other harmful substances which tend to alter attitudes and behavior?
C. What are the most commonly abused drugs?
D. How can the drug abuse problem be controlled?
E. How does the use of alcoholic beverages affect the individual and the community?
F. How does the use of tobacco affect the individual and the community?

UNIT VI. Progress in Community Health (2-3 weeks)

A. In what ways may the ecological forces existing in a community affect the health of its population?
B. What is disease?
C. How can the spread of disease-producing organisms be controlled?
D. What are the most prevalent diseases in the community?
E. What are the prevalent noninfectious diseases in the community?
F. What community resources are available to help citizens with individual and group health needs?

UNIT VII. Safety and First Aid (1-2 weeks)

A. Why is there a need for accident prevention programs to be directed toward young people?
B. What procedures should be followed in case of emergency?

UNIT I

INTRODUCTION TO HEALTH

I. SCOPE OF THE UNIT

The purpose of Unit One is to orient pupils to the nature and goals of the required course in Health. This unit provides opportunities for pupils to gain an overview of the scientific foundations of health knowledge and to study the contributions of the health related sciences to the optimum well-being of man.

It is suggested that one week be allotted to this unit. Modifications of this schedule should be based on pupil needs. Teachers should select from the range of activities suggested those which are best suited to the capacities and interests of individual classes.

II. CONCEPTS TO BE DEVELOPED

Health Education is that field of study which concerns the application of knowledge from the basic sciences to the promotion, development, and maintenance of the optimum well-being of man.

A. What is health?

Health is a state of complete physical, mental, and social well-being.

The status of a person's health is influenced in large measure by the application of scientific principles to his daily life.

B. What are the scientific foundations of health knowledge?

All reliable health information originates from the basic or health related sciences.

C. What are the health-related sciences?

All sciences have as their bases one or more of four major branches, including mathematics and the physical, biological, and behavioral sciences.

The health related sciences are classified as applied sciences because they utilize for practical purposes knowledge from the basic sciences.

D. What are the methods of the health scientist?

The health scientist:

Uses the methods of scientific inquiry in seeking answers to the problems that relate to health.

D. (cont.)

Gains information through reference to the knowledge developed by scientists in other fields.

Gains information through observation.

Gains information through planned experimentation. (An experiment is an observation conducted under specified conditions to test theories and to discover facts.)

E. Who is the health scientist?

A health scientist is any person who works in a field related to health and who uses the scientific method in performing research work or other tasks.

F. What are the tools of the health scientist?

The health scientist utilizes a variety of specialized tools and procedures in the prevention, diagnosis, and treatment of disease.

G. What are the purposes of health appraisals and surveys?

Periodic medical and dental examinations are important factors in maintaining optimum health.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

UNIT I. INTRODUCTION TO HEALTH

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Health Education is that field of study which concerns the application of knowledge from the basic sciences to the promotion, development, and maintenance of the optimum well-being of man.	Prepare bulletin board exhibits and displays of other materials to stimulate the interest and curiosity of pupils in the subject matter to be covered in health.	
A. What is health? Health is a state of complete physical, mental, and social well-being.	Ask pupils to write a brief statement explaining their understanding of health. Is a person who is physically fit necessarily healthy? Interpret the meaning of health in the broad sense of total fitness--physical, mental, emotional, and social--and not merely as the absence of disease or illness. Develop with pupils a list of the characteristics of a healthy individual.	Scott, Foresman Series. Book Seven. pp. 8-15.
The status of a person's health is influenced in large measure by the application of scientific principles to his daily life.	Ask for examples which illustrate how pupils apply scientific principles to their daily lives. Request that the pupils explain why they perform certain practices, such as washing the hands, eating certain foods, becoming inoculated against certain diseases, putting an antiseptic solution on a wound, or not drinking water directly from a mountain stream. Point out that the life expectancy for man has increased dramatically since prehistoric times. For example, the average male who was born during the Greco-Roman era lived approximately 36 years. Male children born today can expect to live more than 70 years.	
B. What are the scientific foundations of health knowledge?	Differentiate between science and superstition. Request that pupils make a list of non-scientific beliefs about health. Discuss how these beliefs may have originated. Point out that science is	Margenau, Henry, Bergamini, David, and the editors of Life. The Scientist. New York: Time, 1964. 200 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

B. What are the scientific foundations of health knowledge? (cont.)

All reliable health information originates from the basic or health related sciences.

A study of many different phenomena
A way of solving problems

Devise a list of true/false statements to test the critical thinking of class members. For example:

	True	False
1. Boys are usually taller than girls at all ages		X
2. Running water in the mountains is safe to drink		X
3. A well-balanced diet and proper amounts of rest and exercise are basic to good health	X	
4. A person with 20/20 vision is said to have normal eyesight		X
5. One should consult the family medical adviser only when ill		X

C. What are the health-related sciences?

All sciences have as their bases one or more of four major branches, including mathematics and the physical, biological, and behavioral sciences.

Use a flannel board to present an overview of the various branches and fields of science. Point out that all sciences have as their bases one or more of four major branches:

Physical sciences--The study of inanimate phenomena of the universe

Life or biological sciences--The study of living things

Mathematics--The study of the relationships among numbers, shapes, and symbols

Social and behavioral sciences--The study of human conduct, both individual and group

Magenau, Henry, Bergamini, David, and the editors of Life. The Scientist. New York: Time, 1964. pp. 84-101.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the health-related sciences? (cont.) The health related sciences are classified as applied sciences because they utilize for practical purposes knowledge from the basic sciences.	Ask students to make a schematic drawing of a "science tree" to illustrate the relationships among the various branches and fields of science and the health sciences. Assign individuals to report on various fields related to health, such as the following: Anatomy Anthropology Bacteriology Biochemistry Biostatistics Dentistry Embryology Endocrinology Enzymology Epidemiology Genetics Hematology Immunology Medicine Microbiology Pathology Pharmacology Physiology Psychology Sociology Space Medicine Virology Zoology	New Careers in the Health Sciences. New York: National Health Council, 1961. pp. 2-5. Margenau, Henry, Bergamini, David, and the editors of Life. The Scientist, New York: Time, 1964. pp. 81-101.
D. What are the methods of the health scientist? The health scientist uses the methods of scientific inquiry in seeking answers to the problems that relate to health.	Outline and discuss briefly the steps involved in the scientific investigation of a problem. These steps include: 1. Recognition and statement of the problem 2. Formation of a hypothesis or tentative explanation 3. Investigation of the hypothesis or tentative explanation 4. Formation of conclusions based on evidence gained from observations and from verification of such facts in a variety of situations	
The health scientist gains information through reference to knowledge developed by scientists in other fields.	Familiarize pupils with some of the ways in which scientists gain information through reference to previous research. Emphasize that new discoveries would not be possible without utilization of the knowledge and theories which have been advanced by other scientists.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the methods of the health scientist? (cont.)	Provide pupils with an opportunity to examine several of the scientific journals which are available in the library. Ask class members to suggest ways in which people depend upon reliable sources in deciding whether to purchase health products and in seeking to resolve a health problem. Assign pupils to collect articles appearing in newspapers and magazines which deal with health and science. Ask them to identify the source of the information and to determine if the individual or group reporting it may be considered authoritative. Analyze with pupils some of the ways in which over-reliance on authority can hinder scientific progress. Relate the story of Pasteur's work in disproving the theory of spontaneous generation.	
The health scientist gains information through observati...	Point out that observation is a method of obtaining information through the senses. Discuss the reliability of observation as a method of research. Relate the story of "The Blind Men and the Elephant." Distinguish between objective and subjective data. Ask the class, "What is the difference between the scientist's method of observation and your own?" Devise situations in which class members have an opportunity to test their skills of observation. Allow pupils to observe the situations for a specified time. Discuss the results. Point out that incomplete or limited observation can lead to misleading results. Identify ways in which the accuracy of observation may be improved. Ask, "How can a checklist or questionnaire be helpful in describing conditions more accurately?"	Saxe, John Godfrey. "The Blind Men and the Elephant," The Best Loved Poems of the American People. pp. 521-522.
The health scientist gains information through planned experimentation.	Point out that the health scientist utilizes a variety of methods, including reference to authority, observation, and planned experimentation in his quest for solutions to problems. In planned experimentation, a controlled	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the methods of the health scientist? (cont.)	situation is introduced to determine whether results may be attributed to a certain treatment or procedure. Both the control group and the experimental group are treated exactly alike, except for use of an experimental variable. An example is Pasteur's experiment, which confirmed that the anthrax organism was responsible for the death of many sheep in France. He selected 100 sheep of similar breeding and environment and divided them into two groups. The 50 that were designated as the experimental group were inoculated with the organism. The 50 sheep designated as the control were not. Within a specified period, all 50 of the injected sheep were either sick or dead. Those that had not been injected with the organism were still in good health. Assign pupil reports on the contributions of famous scientists, such as those listed below, in the fight against disease. Analyse the ways in which scientific methods were utilized to discover solutions to health problems. Leeuwenhoek, Harvey, Sertuener, Jenner, Lister, Behring, Becquerel, Curie, Virchow, Williams (Daniel Hale), Drew, Fleming, Hinton, Julian, Banting, Reed	
An experiment is an observation conducted under specified conditions to test theories and to discover truths.	Perform a simple demonstration to illustrate planned experimentation. The following test illustrates that detergents facilitate the laundering process by surrounding dirt particles with a film of emulsion: Fill two beakers partly full of water. Label one the "control" and the other the "experimental." Add one teaspoon of liquid detergent to the beaker labeled "experimental" and stir. Cut pieces of cotton string into the beakers, and record the	Hone, Joseph, Victor, and Brandwein. A Source Book for Elementary Science. p. 201.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the methods of the health scientist? (cont.)	time that is required for the string in each to descend to the bottom. The string in the beaker labeled "experimental" should fall to the bottom almost immediately.	
E. Who is the health scientist? A health scientist is any person who works in a field related to health and who uses the scientific method in performing research work or other tasks.	Discuss briefly the specialized training and skills required by various medical specialists. Describe how the training and experience of a physician who is a specialist in a particular field of medicine differ from those of the general practitioner. Point out that the specialist has spent several years of additional study in a particular field of medicine and has passed special examinations to qualify for practice in that field. Describe the training and experience required to become a licensed doctor of dental surgery (D.D.S.). Request pupils to report on a health occupation which interests them. Ask pupils to find the answers to questions such as the following: 1. What is the nature of the work? 2. What kind and amount of training are required? 3. Where do persons in these occupations work? 4. What are the employment opportunities in the field? The teacher may wish to schedule each week two or three pupil reports regarding health occupations. Reports may be presented concerning such medical and paramedical occupations as the following: Cardiologist Dermatologist Gynecologist Hematologist Internist Ophthalmologist Orthodontist Orthopedist Otologist Pathologist Pediatrician Psychiatrist Radiologist Surgeon	New Careers in the Health Sciences. New York: National Health Council, 1961. pp. 21-22.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

E. Who is the health scientist? (cont.)

Urologist
Audiometrist
Biochemist
Dental hygienist
Medical laboratory technologist
Nurse
Health educator
Optician
Psychologist
Social worker
Sanitary engineer
Hospital administrator

F. What are the tools of the health scientist?

The health scientist utilizes a variety of specialized tools and procedures in the prevention, diagnosis, and treatment of disease.

Arrange a display of instruments and materials which are used by the health scientist. These may include the microscope, the stethoscope, the sphygmomanometer, an X-ray negative, a thermometer, a hemoglobin scale, a petri dish, a hand lens, and various items of glassware.

Discuss the role of tools and instruments in the diagnosis and treatment of disease. Identify the purpose of the following:

Autoanalyzer
Bronchoscope
Clinical thermometer
Fluoroscope
Electrocardiograph
Electro-encephtalograph
Microscope
Nasal speculum
Otoscope
Stethoscope
Sphygmomanometer
Radioactive tracer isotopes
X-ray machine
Artificial kidney
Heart-lung machine
Artificial heart valve
Opthalmoscope

Devise student activities which utilize several of the instruments. For example, allow pupils to

Read the thermometer.
Use the hand lens to view materials such as sugar and salt.
Use the stethoscope for monitoring sounds.
View prepared slides through a microscope.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. What are the tools of the health scientist? (cont.)	Discuss the purposes of health surveys and appraisals. Devise activities in which pupils graph data obtained from a survey of reported accidents or absences.	Goldstein, Phillip. "How to Do an Experiment."
G. What are the purposes of health appraisals and surveys? Periodic medical and dental examinations are important factors in maintaining optimum health.	Discuss the values of health appraisal in the maintenance of total fitness. List the various kinds of health appraisal. Present samples of health forms and records, such as copies of health cards, corrective physical education cards and folders, dental examination cards, health education inventories (knowledge, attitudes, and practices), physical fitness tests, and vision and hearing tests.	Los Angeles City Schools. Health Education and Health Services Branch. Handbook for Administrators and Their Staffs. 65 pp.
	Discuss the purposes of the periodic medical examination. Invite the school nurse to talk about the school health examination and to explain pertinent health office procedures and practices. Discuss how a medical examination by a private physician differs from the school health examination. List some of the procedures and tests included in the private examination which are not included in the school examination. Explain some of the purposes of these tests.	
	Discuss the purposes of the dental examination. How often should the teeth and gums be examined by a dentist? List on the chalkboard what the dentist looks for and why.	American Dental Association Dental Health Facts for Teachers. pp. 1-15
	Discuss the purposes and extent of dental examinations conducted at school. Stress the limitations of these examinations. Ask pupils to explain how the private dental examination differs from the one at school. Assign pupils to report upon the services of the orthodontist. How does his work differ from that of a regular dentist?	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. What are the purposes of health appraisals and surveys? (cont.)	Explain what the findings of school medical and dental examinations indicate. Discuss the importance of negative findings in these examinations. Why is it important for a pupil to see his family physician or dentist when the need is indicated? Discuss the importance of following the advice of a physician or dentist. Ask pupils to list the ways in which they as individuals are responsible for guarding their own health. Instruct pupils to appraise their own health knowledge, attitudes, and practices. Use teacher-constructed instruments or inventories devised by the class for this purpose. Analyze the results of these appraisals, and discuss ways of overcoming weaknesses.	
	Present a brief overview of the total school health program. Show how each of the following contributes to pupil health: School health services A safe, clean, and wholesome school environment Health instruction Coordination of health activities within the school, and between the school and the community	Los Angeles City Schools. Health Education and Health Services Branch Handbook for administrators and Their Staffs. 65 pp.
	Assign pupils to report upon the duties of school health personnel. Point out how each service contributes to the health of all pupils. Ask pupils to learn the names of key health personnel in the school. Invite the school health coordinator, school nurse, and physician to serve as resource persons during the discussion of duties and services.	

IV. EVALUATION

Evaluation is an important part of the teaching-learning process. Measurement devices and other techniques of appraisal assist both the teacher and the student to assess progress toward the achievement of the desired purposes of health education. Among effective evaluation instruments and procedures which may be used in providing information pertinent to Unit One are the following:

A. Tests and Inventories

1. Standardized Tests and Inventories on Health Knowledge, Health Attitudes, and Health Practices. Analyses of pretest results may be used to determine students' strengths and weaknesses in health. Results also may be used to identify misconceptions held by the students. (A complete listing of such instruments appears in the Mental Measurements Yearbook.)
2. Points of View and Beliefs About Health Science. Lists of statements which reflect various concepts and points of view regarding health are presented to students. They are requested to identify those statements which would most nearly represent the views of a person who thinks scientifically.
3. Opinionnaires. Students are asked to state their opinions and views concerning various health problems and issues.
4. Checklists and Questionnaires on Health Problems and Concerns. Students are asked to indicate health problems about which they are concerned.
5. Application of Principles. Questions of the "What would you do?" type are asked to test the ability of students to apply knowledge of health principles to everyday situations.
6. Sentence Completion Tests. Students are instructed to complete statements such as the following: "Probably the most important concepts to remember in relation to the purposes of health surveys and appraisals are _____."
7. True-False Statements on Health Knowledge, Attitudes, and Understanding.
8. Multiple-Choice Tests on Health Knowledge, Attitudes, and Practices.
9. Matching Items Tests on Health Knowledge, Attitudes, and Practices.
10. Essay-Type Examinations on Various Aspects of Health.

B. Classwork Performance

1. Participation in Group Work and Class Discussion.
2. Oral and Written Reports.
3. Performance Checks and Rating Scales on Selected Procedures and Practices.

C. Student Self-Appraisal

1. Performance Checks and Rating Scales on Selected Health Practices and Procedures.
2. Student Surveys on Selected School Health Practices

IV. EVALUATION (cont.)

D. Teacher Observation of Health Behavior

1. Recorded Incidents of Student Behavior Both in and out of the Classroom.
2. Interviews and Conferences.
3. Rating Scales and Checklists.
4. Teacher Surveys on the Application of Selected Personal Health Practices.

E. Other Pertinent Information

1. Students' Health Records.
2. Student Autobiographies.

UNIT II

GROWING AND MATURING

The contents of this unit including the optional section which appears in the Appendix should be reviewed with the school principal for guidance and direction concerning the treatment of the topics.

I. SCOPE OF THE UNIT

Unit Two is directed toward helping pupils to develop basic understandings and wholesome attitudes about the process of human development. Pupils have an opportunity to learn about the growth and maturational changes which occur during adolescence and to explore some of the personal-social expectancies that accompany these changes.

It is suggested that a maximum of four weeks be allowed for the completion of this unit. As indicated above, teachers are requested to review this unit including the optional section which appears in the Appendix with the school principal for guidance and direction concerning the treatment of topics.

II. CONCEPTS TO BE DEVELOPED

Human development is a process of sequential physical, mental, emotional, and social changes which are the result of both growth and maturation.

A. In what ways do boys and girls grow and mature?

Physical, mental, emotional, and social changes are a normal part of growing and maturing.

B. What is physical growth?

Physical growth is an increase in size.

The cell is the basic building block of the human body.

Cells are made up of protoplasm and consist of a nucleus, cytoplasm, and cell membrane.

The vast number of cells which make up the human body are diversified according to structure and function into tissues, organs, and systems.

C. How does human development begin?

Human development begins with the union of an egg cell and a sperm cell, each containing 23 chromosomes, to form a single fertilized egg cell (zygote) containing 46 chromosomes.

The chromosomes and genes contained within the cell nucleus are responsible for inherited characteristics.

C. (cont.)

Cells resulting from a division through the process of mitosis contain the same number of chromosomes as the parent cell.

All body cells, with the exception of functional reproductive cells, contain the same number of chromosomes.

Because functional egg and sperm cells contain only half the number of chromosomes that are found in other body cells, traits are inherited from both parents.

Cells resulting from a division through the process of meiosis, or reduction division, contain only half the number of chromosomes as the parent cell.

The fertilized egg cell develops into a complex, many-celled organism through cell division and specialization.

Until birth occurs, the developing infant obtains nourishment and oxygen from the mother's blood through a cord attached to its navel.

Growth patterns, as well as other human characteristics, are influenced by both heredity and environment.

D. At what age do boys and girls grow most rapidly?

Boys and girls undergo various stages of growth during the period from birth to maturity, including infancy, childhood, and adolescence.

The two periods during which boys and girls grow most rapidly are the first three years of life and in the adolescent years, beginning at 10 or 11 for girls and about 12 or 13 for boys.

The growth rate during childhood is fairly slow and even.

E. What are the growth changes which occur during adolescence?

The growth and maturational changes which occur during adolescence take place over a period of several years, beginning with puberty and terminating in the late teens for girls and in the early twenties for boys.

Girls are taller and heavier than boys from the ages of about 9 or 10 to about 14 or 15 because they begin the accelerated growth of adolescence at an earlier age.

The rate at which an individual grows and matures is controlled by chemicals secreted by

UNIT II. GROWING AND MATURING

E. (cont.)

the endocrine glands. The pituitary gland is called the "master gland" because the hormones which it produces regulate body growth and control the secretions of other glands which affect growth and development.

The parts of the body do not grow at an even or regular rate.

The endocrine glands are largely responsible for the maturational changes that occur during adolescence.

F. How do the maturational changes which occur in boys and girls during puberty provide for the continuation of human life? (Optional)

(The concepts for this optional section are listed in the Appendix.)

G. What are some of the emotional-social changes which occur during adolescence?

Changes in emotional-social behavior are a normal part of growing up.

Gaining emotional maturity is an important aspect of growing up.

Gaining in understanding and acceptance of self and of others is an important aspect of growing up.

The emotionally mature person is able to get along with other persons in the home, at school, and in the community.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Human development is a process of sequential physical, mental, emotional, and social changes which are the result of both growth and maturation.	Elicit from class members descriptions of ways in which boys and girls grow and mature physically, mentally, emotionally, and socially. Cite examples which demonstrate how pupils grow in the ability to deal with abstractions, generalizations, and ideas. Illustrate how attention span increases with maturity. Ask pupils to list some activities in which they now engage but which they were not permitted to do as sixth graders.	Scott, Foresman Series. Book Seven. pp. 8-15. Crow, Lester and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. 523 pp.
A. In what ways do boys and girls grow and mature? Physical, mental, and social changes are a normal part of growing and maturing.	Describe some of the characteristic behaviors which indicate that boys and girls are growing in social awareness. (Such behaviors might include increased interest in appearance and manners, in the desire for approval of fellow pupils, and in social activities which include members of both sexes.)	
B. What is physical growth? Physical growth is an increase in size. The cell is the basic building block of the human body.	Use pictures and other techniques to illustrate similarities and differences between boys and girls of the same age and of different ages in relation to aspects of physical growth, such as height, weight, body proportion, and muscular development. Point out that physical growth is the result of an increase in cellular mass. Body cells are reproducing themselves constantly to provide for growth and replacement of body tissues. The human organism grows in size, from that of a single cell which is barely visible to the naked eye to that of about 100 trillion cells (10^{13}). These cells vary in size, shape, color, and arrangement, depending upon their location and function in the body.	Filmstrip "The Cancer Challenge to Youth."

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What is physical growth? (cont.)	Display models and illustrations of the typical cell. Discuss the functions of the basic parts. Set up a demonstration on diffusion to illustrate the properties of semi-permeable membranes and to explain how waste products enter and leave the cell.	
Cells are made up of protoplasm and consist of a nucleus, cytoplasm, and cell membrane.	Arrange for the class to view prepared slides and drawings of different kinds of body cells and tissues. Emphasize that many cells are microscopic in size. Some, such as nerve cells, are several feet long. Some are transparent. Others have more than one nucleus.	Charts, Animal Cells. Requisition for Consumable Supplies for Junior and Senior High Health Education #813203.
The vast number of cells which make up the human body are diversified according to structure and function into tissues, organs, and systems.	Instruct pupils to draw various kinds of cells and cell tissues. Ask them to identify the functions of the basic kinds of tissues in the human body. Discuss briefly the requirements which are necessary for life. Illustrate how the cells of the body are grouped into tissues, organs, and systems to perform body functions. Present an overview of the various body systems, and describe the contribution of each to the total functioning and well-being of the individual. Compare the functioning of the body with that of a giant computer.	
C. How does human development begin?	Explain that every human life begins with the union of a sperm cell and an egg cell within the mother's body to form a single fertilized egg cell. Growth occurs through the process of cell division.	Scott, Foresman Series. Book Seven. pp. 263-264.
Human development begins with the union of an egg and a sperm cell, each containing 23 chromosomes, to form a single fertilized egg cell (zygote) containing	Clarify the following terms: fertilized egg cell, sperm cell, ovum, zygote, embryo, fetus, and DNA. The chromosomes and genes within the cell nucleus are thought to be composed of a combination of chemical substances known as DNA (Deoxyribonucleic Acid). This substance contains the genetic code which is responsible for transmitting hereditary characteristics from parent	Facts Aren't Enough. Chicago: American Medical Association. 46 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How does human development begin? (cont.) 46 chromosomes. The chromosomes and genes contained within the cell nucleus are responsible for inherited characteristics.	to daughter cells. It is also responsible for directing and controlling the chemical make-up of cells. Indicate to pupils that they are a product of all their ancestors. Ask them to suggest some of the ways in which they resemble their parents and their grandparents. Point out that all inherited traits do not appear in each generation. Instruct the class to list some of the traits which they believe are transmitted from generation to generation. Chart on the chalkboard the expression of a trait, such as eye or hair color, to illustrate how certain genes in gene pairs may be dominant and how others may be recessive in the expression of a trait. Some traits are the result of a blending of both dominant and recessive traits, which is referred to as incomplete dominance.	Hutchins, Carleen Maley. Life's Key - DNA. New York: Coward-McCann, 1961. 64 pp. Charts, Heredity (Color Blindness). Requisition for Consumable Supplies for Junior and Senior High Health Education, #813247.
Cells dividing through the process of mitosis contain the same number of chromosomes as the parent cell.	Devise models and drawings to illustrate the way in which cells reproduce through the process of mitosis. Emphasize that the resulting daughter cells contain the same number of chromosomes as the parent cell.	
All body cells, with the exception of functional reproductive cells, contain the same number of chromosomes.	Develop the concept that all body cells, except functional reproductive cells, contain 46 chromosomes which are arranged in pairs. One of these pairs consists of two X chromosomes in the body of the female and an X and a Y chromosome in the body cells of the male.	Crow, Lester and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. 523 pp.
Because egg and sperm cells contain only half the number of chromosomes that are located in other body cells, traits are inherited from both parents.	Use models, drawings, and other devices to illustrate the process of meiosis, or reduction division. Emphasize that the resulting daughter cells contain only half the number of chromosomes as the parent cell. Unlike the egg cell, which always carries the X chromosome, sperm cells may carry either an X or a Y chromosome. Therefore, the sex of the zygote is determined with fertilization of the egg by a sperm, carrying either an X or a Y chromosome.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How does human development begin? (cont.) Cells which divide through the process of meiosis, or reduction division, contain only half the number of chromosomes as the parent cell. The fertilized egg cell develops into a complex, many-celled organism through the process of cell division and specialization.	Present a brief overview of the development of the fertilized egg cell, from conception to birth. Point out that the egg cell divides into 2, 4, 8, and other multiples to form a cellular mass immediately following fertilization. It then develops into a hollow ball with a small mass of cells at one end. After several days, the zygote implants itself into the wall of the mother's uterus, where it grows and develops for approximately 9 months. Cell division and differentiation continue. These processes create three special cell layers, from which all the tissues and organs of the body are formed, the amnion, the sac which surrounds the embryo; and parts of the placenta.	Charts, Reproductive System. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813269 (Female), #813272 (Male).
Until birth occurs, the developing infant obtains nourishment and oxygen from the mother's blood through a cord attached to its navel.	Explain briefly that the developing infant receives nourishment through two special structures: The placenta, a flat spongy structure that grows along the wall of the uterus during pregnancy; and the umbilical cord, the attachment between the fetus and the placenta. An interchange of nutrients and oxygen from the mother's blood and of waste products from the infant's blood takes place through the process of diffusion.	Charts, Embryology. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813232.
Growth patterns, as well as other human characteristics, are influenced by both heredity and environment.	Ask pupils to identify several traits which they believe are acquired. Evaluate the role of both heredity and environment as factors responsible for traits present at birth. Discuss the effects of prenatal influences, such as: Nutrition — Deprivation of oxygen Fluoridation — Narcotic and dangerous drugs Infections — Tobacco smoke	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How does human development begin? (cont.)	Point out that, during the prenatal period, the human infant grows in size from a speck of protoplasm to a complex organism of about 20 to 22 inches in length. Illustrate how environment contributes to potential growth and development. Develop a list of environmental influences. Cite findings of scientific studies illustrating the effects of environmental factors on plant and animal life. Discuss some of the health hazards which a person encounters in his physical environment, and show how these may affect potential growth and development (accidents, infections, pollution).	
D. At what age do boys and girls grow most rapidly? Boys and girls undergo various stages of growth in the period from birth to maturity, including infancy, childhood, and adolescence. The two periods during which boys and girls grow most rapidly are the first three years of life and in the adolescent years, beginning at about 10 or 11 for girls and at about 12 or 13 for boys.	Ask the class to identify the various stages of growth from infancy to adulthood. Plot the typical growth patterns for boys and girls. Point out that the two most rapid growth periods are during infancy and adolescence. The bodies of most babies increase in length by 10 inches, or approximately 50 per cent, during the first year. They grow about 5 or 6 inches during the second year. Discuss the number of growth changes occuring during the first years of life: Physical Development. Skeletal growth and dentition; muscular development and coordination Personal-Social Development. Emergence of behavior patterns; relationships with children of the same age	Crow, Lester and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. 523 pp. A Boy and His Physique National Dairy Council.* A Girl and Her Figure. National Dairy Council.*
The growth rate during childhood is fairly slow and even.	Compare the growth rates of boys and girls during childhood with those which are characteristic during infancy. Use charts and models to illustrate changes	*List of Approved Free Supplementary Health Education Materials.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. At what age do boys and girls grow most rapidly? (cont.)	in skeletal growth and dentition. Ask pupils to list some of the skills and competencies which are normally gained during childhood, such as reading, writing, using an increased vocabulary, solving arithmetic problems, riding a bicycle, playing softball, and sewing. Show how the ability to perform these activities is related to both growth and maturation. Analyze situations illustrating how children begin to develop a sense of responsibility at home, at school, and in the community. Ask class members to name the kinds of activities that they liked to do best in elementary school. Compare the activities of boys with those of girls.	
E. What are the growth changes which occur during adolescence? The growth and maturational changes which occur during adolescence take place over a period of several years, beginning with puberty and terminating in the late teens for girls and in the early twenties for boys.	Indicate that adolescence is the period of transition from childhood to adulthood. The growth and maturational changes which occur during adolescence are called "pubertal changes." The term puberty is derived from the Latin term "pubertas," which means "the age of manhood." Changes take place during a period of several years and usually terminate in the late teens for girls and in the early twenties for boys.	Scott, Foresman Series. Book Seven. pp. 247-248.
Girls are taller and heavier than boys from the ages of about 9 or 10 to about 14 or 15 because they begin	Discuss what is meant by the term "adolescent growth." Compare ages at which this period of rapid growth usually begins for boys and girls. Point out that those individuals whose adolescent growth spurt occurs early do not necessarily grow taller than those whose	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the growth changes which occur during adolescence? (cont.) their adolescent growth earlier.	rapid growth spurt occurs later. Assign pupils to construct a graph, depicting their growth, beginning with the year of their birth. (Let one inch represent one foot.) Instruct pupils to display infant pictures in the classroom. Ask class members to try to identify the pupils concerned. Analyze some of the reasons for pupil choices. Were the tallest individuals at birth still among the tallest in the class? What was the average length at birth of pupils in the class? Define the terms "average" and "normal." Show how averages are determined. Record the height of each pupil on the chalkboard. Request pupils to compute and compare the average and median height for the boys and girls. How do class averages differ from those recorded on standard height and weight charts? Employ the Physical Growth Record prepared by the Joint Committee of the National Education Association and the American Medical Association to indicate to pupils how individuals of the same age may vary in relation to height and weight during the growing years. The zone classifications for height and weight are as follows: short, moderately short, average, moderately tall, and tall; light, moderately light, average, moderately heavy, and heavy. Since individuals of the same age vary more in weight than in height, the zones for weight are wider than those for height. Illustrate to pupils how their height and weight zones may change during the growing years. Ask pupils to suggest reasons why adolescents are taller and heavier than they were a generation ago.	A Boy and His Physique. National Dairy Council.* A Girl and Her Figure. National Dairy Council.* *List of Approved Free Supplementary Health Education Materials.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the growth changes which occur during adolescence? (cont.)	Use visual materials to show differences in size and body proportions of boys and girls at the beginning and at the end of puberty.	
	Employ charts and models to present a brief overview of the endocrine system and its role in growth and development. Explain why the endocrine glands are called "ductless." Review the term "hormone."	
The rate at which an individual grows and matures is controlled by chemicals secreted by the endocrine glands. The pituitary gland is called the "master gland" because the hormones which it produces regulate body growth and control the secretions of other glands which affect growth and development.	Ask pupils to suggest reasons why the pituitary gland is sometimes called the "master gland" and the "gland of many hormones." Explain influences of the pituitary gland on growth. What relationship does this gland have to other glands?	Scott, Foresman Series. Book Seven. p. 248.
	Describe some of the physiological changes which occur in boys and girls as they mature. Arrange for pupils to take and record their pulse rates. Chart this information to show variations in pulse rate on the basis of age and sex. (When the pulse rates and blood pressures of large numbers of adolescent boys and girls are taken under controlled conditions by medically qualified personnel, the girls are found to have rates which are a few points higher than those of the boys. The blood pressures of boys and girls tend to increase during adolescence, the girls' pressure exceeding that of the boys by a few points until approximately age 13. At that time, the girls show a decrease, but the boys maintain their gains. However, the normal ranges overlap.)	
The parts of the body do not grow at an even or regular rate.	Cite information concerning changes during adolescence in the size of the heart and blood vessels, in blood pressure, and in metabolism. (The heart approximately doubles in size from ages 9 to 16. Arterial growth proceeds at a much slower rate than does heart size growth.) Discuss the meaning of blood pressure. Demonstrate use of the sphygmomanometer, the apparatus used to measure blood pressure.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the growth changes which occur during adolescence?	Provide additional examples of unevenness of the rate of body growth. Indicate how one part of the body may be "out of step" with another. How does this condition contribute to one's feeling of awkardness? Emphasize that the ossification of the skeletal structures continues during the adolescent years. Ask pupils why competitive athletics involving body contact are not recommended for junior high school pupils. Compare sex differences in relation to dental growth. (Girls are more advanced in dental growth than boys.) Point out that the number of permanent teeth erupted usually represents a fairly reliable measure of maturity. Why are care and protection of the teeth particularly important during these years?	
	Explain how at a certain age another group of pituitary hormones, the "gonadotropins," stimulates and acts together with the gonads (ovaries and testes) to affect pubertal changes. Describe characteristic growth changes at puberty:	Charts, Endocrine Glands. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813227.
	<u>In girls</u> Growth in height and, later, in weight; development of a "figure," with rounding of the hips and the breasts; maturation of odor-producing sweat glands in the pubic and underarm areas of the body; development of pubic and underarm hair.	Scott, Foresman Series. <u>Book Seven</u>. p. 248.
	<u>In boys</u> Growth in height and, later, in weight; development of a "physique," with broadening of the shoulders and narrowing of the hips; development of pubic	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the growth changes which occur during adolescence? (cont.)	underarm, and facial hair; deepening of the voice; and the maturation of odor-producing sweat glands in the pubic and underarm areas.	
F. How do the maturational changes which occur in boys and girls during puberty provide for the continuation of human life? (Optional)*	Refer to the Appendix for the special resource unit entitled, "Continuation of Human Life." This optional instruction is designed as a supplement to Unit II. The teaching of this optional content is contigent upon the approval of the school principal. Teachers are requested to review both Unit II and "Continuation of Human Life" with the principal for guidance and direction concerning the scope of coverage of the topics included in these units.	Scott, Foresman Series. The Human Story. Harper, Row. Human Reproduction
G. What are some of the emotional-social changes which occur during adolescence? Changes in emotional-social behavior are a normal part of growing up.	Appoint a committee to observe and to compare selected aspects of behavior and appearance of seventh- and ninth-grade pupils in various school situations. Review and illustrate similarities and differences between adolescent boys and girls of the same age and of different ages in relation to emotional-social behavior. Ask the class to list the kinds of activities in which junior high school boys and girls like to participate. How do these activities differ from those liked by pupils in elementary school and in senior high school? Analyze some of the reasons why girls are more interested than boys in boy-girl activities during the junior high school years.	Scott, Foresman Series. Book Seven. pp. 206-234; 239-257.
Gaining emotional maturity is an important aspect of growing up.	Request class members to develop a list of the characteristics of a person who behaves in an emotionally mature way.	

*The concepts and related information for this section are listed in the special resource unit, "Continuation of Human Life," which appears in the Appendix.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. What are some of the emotional-social changes which occur during adolescence? (cont.)	Define the term "emotion." Identify the range of human feelings that are termed "emotions." Display photographs from magazines and newspapers showing examples of both pleasant and unpleasant emotional states. Ask pupils to describe the moods of the subjects and to cite reasons for their opinions. Discuss some of the physiological changes which accompany strong emotional feelings, such as fear, anger, worry, and embarrassment. Describe situations illustrating how emotions may be expressed in a variety of ways. Analyze with pupils some of the forces which are responsible for influencing the ways in which people react to various situations. Ask pupils to suggest reasons why American men are seldom seen crying in times of deep sorrow and why mature persons usually do not settle their differences through physical violence. Emphasize the values of sports and other recreational activities in providing constructive outlets for expressing emotional energies. Evaluate the merits of talking things out with parents, teachers, or a trusted friend when situations occur which are emotionally upsetting. Discuss the importance of humor as a means of relieving tensions. Provide opportunities for pupils to recognize the value of humor in preventing an altercation. Ask for examples which indicate how junior high school pupils are growing in emotional control. Appoint committees to devise and dramatize (role playing) situations which evidence emotional stability and maturity of judgment.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. What are some of the emotional-social changes which occur during adolescence? (cont.) Gaining in understanding and acceptance of self and of others is an important aspect of growing up.	List on the chalkboard, and discuss basic emotional needs or feelings that are common to everyone. For example, these include: To be liked To belong To be respected To be successful in at least some activities Initiate a project to illustrate how a person can take an inventory of his own strengths and weaknesses. Instruct each pupil to identify the two activities which he likes to do best and the two activities which he likes to do least. Ask pupils to list the activities in which they believe that they are the strongest and those in which they feel that they are the weakest. Make comparisons to find out the relation between activities "liked best" and those listed as "strongest." Suggest ways of discovering other activities which pupils might enjoy and be able to do well. Why is it important for a person to complete his assigned tasks even when he does not especially like them? Describe how a particular weakness may be corrected. Ask pupils to describe ways of meeting situations in which they feel inadequate. Distribute slips of paper to class members, and ask them to list the five characteristics which they admire most in a person. Appoint a committee to prepare a self-rating scale, utilizing the characteristics mentioned most often. Use the list as a self-check for each pupil. Plan a panel discussion on the topic of developing self-confidence. Why are the formulation and accomplishment of attainable goals important in building self-confidence?	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. What are some of the emotional-social changes which occur during adolescence? (cont.)	Ask pupils to analyze the statement, "I'll wait until I get to high school before trying to do my best." Discuss the relationship between privileges and responsibilities. What responsibilities accompany certain privileges? Why is it important to develop a sense of responsibility toward oneself? Ask for reports which illustrate how strong determination has helped outstanding individuals to achieve success despite early hardships and failures.	
Gaining in understanding and acceptance of self and of others is an important aspect of growing up.	Discuss how attitudes of acceptance or rejection of others are expressed (facial expression, quality of voice, avoidance, friendliness). Describe how a person's feelings about himself may be reflected in his relationships with others. Ask pupils why the four-year-old is usually jealous of his new baby brother, or why the person who is hypercritical and unsure of his own abilities is sometimes hypercritical of others. Show how persons tend to react in a positive manner to attitudes of friendliness and courtesy and in a negative manner to expressions of hostility. Instruct pupils to test this hypothesis by recording the initial reaction of pupils whom they meet throughout the day. Ask pupils to write a paragraph telling how they would go about making friends as a newcomer to a school. Dramatize situations which illustrate how interests provide a basis for friendships. List on the chalkboard, and discuss several basic qualities that are important in making and keeping friends.	Scott, Foresman Series. Book Seven. pp. 242-257.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. What are some of the emotional-social changes which occur during adolescence? (cont.) The emotionally mature person is able to get along with other persons in the home, at school, and in the community.	Develop a list of principles for getting along with classmates of both sexes. Find out what traits boys like best in girls. Find out what traits girls like best in boys. Discuss common courtesies in boy-girl relationships. Outline some of the values derived from participation in group activities. Why is it important for a person to learn to behave effectively in group situations? Identify ways of making other persons feel that they are a vital part of a group. Dramatize a group situation in which several individuals discuss a party in the presence of others who were not invited. Identify the responsibility of the group leader in this situation. Identify the responsibility of group members. Define the word "clique." How do cliques differ from other kinds of groups? Evaluate "cliques" and "going steady." Why are these poor practices in junior high school and in an individual's social development? Discuss ways of handling feelings of disappointment. Request that pupils hold a panel discussion on "Getting the Most from School." Stress the importance of developing a set of desirable individual values from school experiences. What responsibilities do pupils have at school in getting along with others. Discuss the importance of the family unit. What responsibilities do pupils have for helping to strengthen family unity? Ask pupils to recall times when encouragement and support from family members proved to be of immeasurable value in helping to achieve individual goals. Point out pupil responsibilities which are important in getting along with adults in the community. How does a	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. What are some of the emotional-social changes which occur during adolescence? (cont.)	person's regard for the community contribute to the maintenance and improvement of its conditions and reputation? Discuss immediate and long-term consequences of irresponsible behavior in the community. Who is legally responsible for the actions of a minor? What is the purpose of a curfew law? Plan small discussion groups to develop suggestions for improving the community's image of the teenager. Indicate ways in which junior high school pupils are growing in independence. For example, to what extent are they learning to select clothes, handle money, and increase in responsibility and dependability? Discuss how developing a sense of responsibility is important in growing in independence. List situations which indicate that junior high school pupils are growing in the ability to assume responsibility at home, at school, and in the community.	

UNIT II. GROWING AND MATURING

IV. EVALUATION

Certain techniques have proved helpful in ascertaining student progress toward the stated purposes of this unit. Following are several examples:

A. Suggestions for Evaluating Student Progress

1. Classwork Performance

a. Participation in Panel Discussions and Group Work
b. Oral and Written Reports

2. Tests and Inventories

a. Application of Principles of Growth and Maturation. Students are asked to analyze the average growth patterns of maturing boys and girls and to apply the principles of growth and maturation to individual variations in growth rate, body structure, and other characteristics.
b. Points of View and Beliefs Concerning Adolescent Privileges and Responsibilities. Lists of statements which reflect various adult privileges and responsibilities are presented to students. They are requested to identify those which they feel should be granted to the adolescent. Request students also to react to the statements from the point of view of a parent.
c. Multiple Choice Tests on Knowledge and Attitudes.

B. Teacher Records and Observations

1. Student Autobiographies
2. Ratings of Student Behavior in Group Situations
3. Interviews and Conferences
4. Recorded Incidents of Student Behavior Both in and out of the Classroom

UNIT III

ACHIEVING PERSONAL HEALTH

I. SCOPE OF THE UNIT

In Unit Three, pupils learn to recognize that every boy and girl has basic health needs which must be met to maintain optimum fitness. Opportunities also are provided for pupils to explore the scientific bases of personal health practices and to establish priorities for meeting these needs in their daily living.

The suggested time allotment for completing this unit is three weeks. Modification of this time schedule should be based on the needs of students. Teachers should select from the range of activities suggested those activities which are best suited to the capacities and interests of individual classes.

II. CONCEPTS TO BE DEVELOPED

Appearance, health, and fitness are interrelated and dependent upon the degree to which personal health needs are met.

A. What may be inferred about a person's health from his personal appearance and performance of various tasks?

Every boy or girl has basic health needs which must be met to maintain optimum fitness.

B. In what ways does dental health contribute to the appearance and optimum functioning of the individual?

The teeth not only function in the digestion of foods but also provide contour to the face and aid in the formation of various sounds.

Permanent dentition, except for the wisdom teeth, is completed during the junior high school years (ages 12 to 15).

Effective oral hygiene involves both individual and professional dental care.

Fluoridation has proven to be effective in the prevention of dental caries.

Proper brushing of the teeth helps to reduce dental health problems.

Proper diet helps to reduce tooth decay.

C. In what ways does the skin contribute to the health and optimum functioning of the individual?

C. (cont.)

The skin functions as a protective covering, as an organ of sensation, in the elimination of body wastes and in the regulation of body temperature.

The skin is composed of two layers: The outer skin, or epidermis; and the true skin, or dermis.

The dermis, or true skin, contains oil and sweat glands, nerve endings, papillae, blood vessels, and hair follicles.

Sound health practices help to prevent and control skin problems.

The selection and use of cosmetics and skin preparations should be based on sound knowledge and mature judgment.

D. How does posture contribute to the appearance and optimum functioning of the individual?

A person's posture reflects his physical and emotional health.

Proper body alignment helps to promote optimum growth and body functions.

The skeleton provides the basic framework of the body.

The bones of the skeleton come together at joints, permitting the body to move in a variety of ways.

The muscles produce movement, give the body form, and make possible the body's erect posture.

Correct posture, cleanliness, and appropriate footwear are basic to foot health.

E. How does eye health affect the well-being of an individual?

A person's capacity to function is dependent largely upon his ability to see.

An object is visible because light reflected from it reaches the photo-sensitive nerve cells of the eye.

The eye is a complex organ which functions like a camera.

Because the eye is made up of many different types of tissues and structures, it may be affected by a variety of defects, injuries, and diseases.

Visual defects which prevent light rays from focusing properly on the retina are called refractive errors.

UNIT III. ACHIEVING PERSONAL HEALTH

E. (cont.)

Periodic eye examinations and screening tests are important ways to assure eye health.

Precautions should be taken to protect the eyes from infection or injury.

F. How does ear health affect the well-being of an individual?

A person's capacity to function is influenced by his ability to hear.

Sound waves are produced by vibrating objects.

Sounds are audible because the mechanisms of the ear are able to receive and transmit sound waves to the brain for interpretation.

Periodic screening tests are an important aspect of ear health.

Precautions should be taken to protect the ears from infection or injury.

Care of the nose and throat is an important aspect of ear health.

G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum functioning of the individual?

Boys and girls need proper amounts of rest and sleep to achieve maximum physical and mental performance.

Persons may differ in the amount of sleep that they require.

Fatigue may be the result of a variety of causes.

Physical fitness is the ability to play and work hard, without undue fatigue, and with energy left to meet the demands of daily living.

A balanced program of work, rest, and recreation requires individual planning.

Appropriate dress contributes to a healthy, attractive appearance.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Appearance, health, and fitness are interrelated and dependent upon the degree to which personal health needs are met.	Analyze pictures of teenage boys and girls who present a healthy, well-groomed appearance. Develop with pupils a list of personal health needs which help the individual to look and perform at his best. For example: Dental health Skin care Posture and foot health Eye and ear health Adequate physical activity, rest, and sleep Appropriate dress	
A. What may be inferred about a person's health from his personal appearance and performance of various tasks?		
Every boy or girl has basic health needs which must be met to maintain optimum fitness.	Instruct a pupil committee to interview the school nurse concerning major health problems and needs of pupils.	
B. In what ways does dental health contribute to the appearance and optimum functioning of the individual? The teeth not only function in the digestion of foods but also provide contour to the face and aid in the formation of various sounds.	Request displays from the Dental Health Section. Instruct pupils to submit questions about dental problems in preparation for a visit by the school dentist. Discuss the purpose of the "Smile of the Year" Contest. Review the criteria that are used in the judging. Devise and administer a brief pretest on dental health concepts. Illustrate through the use of pictures, role playing, and discussion how dental health contributes to personal appearance and helps to create a favorable impression on other persons. Ask pupils to cite several functions of the teeth. Show how teeth provide shape and contour to the face and aid in the formation of various sounds. Request that class members report the speech patterns of a younger brother or sister who is losing primary teeth.	Scott, Foresman Series. Book Seven. pp.276-277.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. In what ways does dental health contribute to the appearance and optimum functioning of the individual? (cont.)	Discuss how crooked, decayed, and missing teeth may affect one's personality. Mention several mannerisms that persons acquire as a result of being self-conscious about a dental problem. How many of these dental problems can be corrected? Explain how chewing contributes to the enjoyment of foods and aids in the digestive process. Review the function of various teeth in the biting and chewing of foods. Incisors for biting Cuspids for tearing Bicuspids for grinding Molars for grinding and crushing Provide individual oral hand mirrors for pupils to identify each kind of tooth on both sides of the mouth.	Charts, Teeth (Jaw and Molar). Requisition for Consumable Supplies for Junior and Senior High Health Education, #813281. Charts, Teeth (Permanent and Deciduous). Requisition for Consumable Supplies for Junior and Senior High Health Education, #813285.
Permanent dentition, except for the wisdom teeth, is completed during the junior high school years (ages 12 to 15).	Present an overview of the growth and development of the teeth. Use charts and models to compare the primary (deciduous or milk) teeth with the permanent teeth. The 20 primary teeth begin to appear at about the age of 7½ months and are complete at about 24 months. Display X-rays of primary teeth and of permanent teeth imbedded in the gums. point out that both sets begin to develop before birth. Review the structure of the tooth. Ask pupils to draw and label the parts of a tooth.	Dental health education kits containing an oral mirror, toothpaste, a toothbrush, and disclosing tablets are available on the basis of one per pupil from the Dental Health Section.* Dental Health Facts for Teachers. 29 pp.
Effective oral hygiene includes both individual and professional dental care.	Invite the school dentist to discuss the prevention and control of dental diseases. Report that more than 90 per cent of pupils in junior high schools have tooth decay and about 30 per cent have malocclusion. Explain briefly the difference between dental caries and periodontal disease. Review the probable causes of tooth decay. Describe how sugars and other fermentable carbohydrates are transferred by microorganisms in the mouth into acids which are capable of producing carious lesions and eventual loss of teeth. Describe the importance of professional dental care and	Obtain materials from Dental Health Section. *Parent permission for the use of this item may be obtained at the discretion of the school principal.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. In what ways does dental health contribute to the appearance and optimum functioning of the individual? (cont.)	of guidance in the prevention of dental disease. Cite the value of dental x-rays. Display sets of x-rays obtained from the Dental Health Section. How often should the teeth be examined? Discuss the advantages of regular visits to the dentist. Illustrate how irregular, crowded teeth may be more susceptible to decay than even, well-spaced teeth. Use models and charts to illustrate the effects of maloccluded teeth. Why is the periodic removal of accumulated tartar from the teeth important in preventing gum infections? Discuss how acute infections resulting from abscessed teeth and infected gums may affect a person's general health. Request the use of the Snyder Test Kit from the Dental Health Section to show individual differences in susceptibility to tooth decay. Review safety factors important in guarding the teeth against undue injury.	
Fluoridation has proven to be effective in the prevention of dental caries.	Discuss the application of fluoride to the surfaces of the teeth (topical application) as a method of combating tooth decay. Assign a class member to report on the effect of fluoridation on drinking water (odor, taste, color, and cost). Point out that dental decay in teeth of children drinking fluoridated water since birth is 65 per cent less, on the average, than decay in the teeth of children drinking fluoride deficient water. The process of adding fluoride is inexpensive, costing about ten cents per person each year.	Dental Health Facts for Teachers. p. 16. 1966 National Dental Health Assembly Emphasis: Fluoridation. U. S. Department of Health, Education, and Welfare. No. 1552.
Proper brushing of teeth helps to reduce dental health problems.	Stress the individual's role in maintaining a clean, healthy mouth. Arrange for pupils to develop and utilize a self-check of individual health practices. Demonstrate the use of a disclosing tablet as a means of checking how effectively film, dental plaque, and	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. In what ways does dental health contribute to the appearance and optimum functioning of the individual? (cont.)	debris are being removed from the teeth through brushing. Emphasize factors involved in proper brushing of the teeth. Request pupils to make a diagram illustrating the condition their teeth. Instruct them to designate which teeth have cavities and which have fillings. Ask the pupils to use the findings of a recent examination by a dentist and the results of self-study with an oral mirror to indicate remedial actions which may be necessary. Evaluate the practice of rinsing the mouth with water immediately after eating when brushing is not possible. Ask for a report on the mechanical toothbrush. List characteristics which should be considered in purchasing a toothbrush. Suggest several causes for mouth odor. Evaluate the effectiveness of mouth washes in preventing bad breath. Ask the class to collect samples of advertisements concerning various dental hygiene products. Discuss ways to check the reliability of these products.	
Proper diet helps to reduce tooth decay.	Instruct pupils to formulate individual plans for limiting sweets in the diet. Ask them to develop posters and exhibits showing tasty and attractive fruits, vegetables and other non-sugar snacks which do not contribute to the development of tooth decay. Appoint a committee to survey the amounts of sweets eaten by schoolmates during nutrition and lunch, and on special school occasions. Assign class members to develop a list of procedures for initiating and conducting a campaign to prevent tooth decay.	
C. In what way does the skin contribute to the health and optimum functioning of the individual?	Ask pupils to explain briefly what the skin does. Use stimulating questions to begin discussion, such as --How does the skin serve as a protective covering?	Today's Health Guide. American Medical Association. Chicago: 19[illegible]. pp. 81-87.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. In what way does the skin contribute to the health and optimum functioning of the individual? (cont.) The skin functions as a protective covering, as an organ of sensation, in the elimination of body wastes and in the regulation of body temperature. The skin is composed of two layers: The outer skin, or epidermis; and the true skin, or dermis. The dermis, or true skin, contains oil and sweat glands, nerve endings, papillae, blood vessels, and hair follicles.	--What happens to the skin when a person feels too warm or too cold? --Why does the skin feel moist? --What part does the skin have in the elimination of body wastes? --How does the skin serve as a sensory organ? Use a chart or model of the skin to point out the make-up of the outer (epidermis) and inner (dermis) layers of the skin. The subcutaneous or fatty tissue which lies beneath the dermis is sometimes classified as a third layer of skin. Explain that: --The outermost cells of the epidermis are dead and hardened. --The pigment granules which produce the color of skin are located in the epidermis. Hair and nails are modified forms of the epidermis. --The dermis, or true skin, is composed of fibrous living tissue which supports blood vessels, sensory nerve endings, papillae, oil and sweat glands, and hair follicles. --The subcutaneous layer contains fatty tissue, blood vessels, and nerves. This layer provides insulation against heat loss and links the tissues of the inner skin with those of the muscles and bones. Absorption of this fatty layer with aging causes the skin to wrinkle. Provide opportunities for pupils to view prepared slides of the skin and of a hair. Allow them to examine the surface of the hand with a magnifier.	Charts. Skin, Requisition for Consumable Supplies for Junior and Senior High Health Education, #813242. Scott, Foresman Series. Book Seven. pp. 188-189

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. In what way does the skin contribute to the health and optimum functioning of the individual? (cont.)	Explore the distances between tactile nerve endings on the back of the hand, the arm, and the forehead. For measuring distances, use the heads of two straight pins, the points of which have been inserted diagonally into a cork stopper so that they touch. Probe skin areas by changing the distances between the pin heads. When only one pin head can be felt, the distance between nerve endings in one area has been determined. Obtain several figures for each part of the body being studied. Average the results. Discuss other sensations received through the skin.	
	Point out that there are approximately 1.5 to 3 million sweat glands in the body. Greater numbers are located in the armpits, in the hands and feet, and on the forehead. Certain of these glands, which are located in the axillary region, do not become active until the onset of puberty. The secretions from these glands differ somewhat from typical "sweat" and produce a body odor.	Los Angeles City Schools. Health Services Branch. "Acne." Form 33.40.
	Indicate the relationship between the oil, or sebaceous glands, and the hair follicles. Explain that these glands secrete an oily substance, known as sebum, which helps to lubricate the hair and skin. Excessive secretions of sebum produce an oily skin and may be associated with acne and dandruff.	
Sound health practices help to prevent and control skin problems.	List several reasons why cleanliness is an important factor in keeping the skin healthy and free from infections. Discuss how frequent washings with soap and warm water help to remove excessive oiliness, perspiration, and bacteria from the skin. Name other factors which help to keep the skin healthy.	
	Ask pupils to list health practices which are important in the care of the skin, hair, and nails. Stress the need for particular care in washing those areas of the face where oil is most likely to accumulate, such as the sides	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. In what way does the skin contribute to the health and optimum functioning of the individual? (cont.)	of the nose, along the chin, and on the forehead. Discuss procedures and frequency for washing the hair. Contrast the condition of the hair with that of an oily mop. Show that oily hair needs to be washed more frequently than does dry hair. Ask pupils to state several reasons for showering after strenuous activity. Explain that body odor is produced by the action of surface bacteria on perspiration. How do deodorants help to prevent body odors? Distinguish between a deodorant and an anti-perspirant. Ask for a volunteer to disarrange his hair and then to comb it. Ask the class to note the difference in the pupil's appearance. Instruct the class to develop several tips on care of the hair. Discuss hair styles and haircuts for various occasions. Assign a pupil to report on school policy regarding hair styles and haircuts.	
	Report that acne normally appears and disappears in persons between the ages of 13 and 23 in approximately 90 per cent of all cases. Mention several factors which probably influence the occurrence and severity of acne. Develop a list of health practices in relation to the control of acne (proper diet, cleanliness, sunshine, exercise, rest).	Scott, Foresman Series. Book Eight. pp. 46-49.
	Cite the potential risks from self-treatment of skin conditions and from the squeezing of pimples, blackheads, and other skin blemishes. Why should moles and other skin growths be observed periodically for changes? Invite the school physician or nurse to discuss acne and other skin problems. Request pupils to submit questions for discussion. Develop common-sense practices with regard to sunbathing. Discuss the mechanisms involved in tanning and freckling. How much protection do oils and suntan preparations provide?	

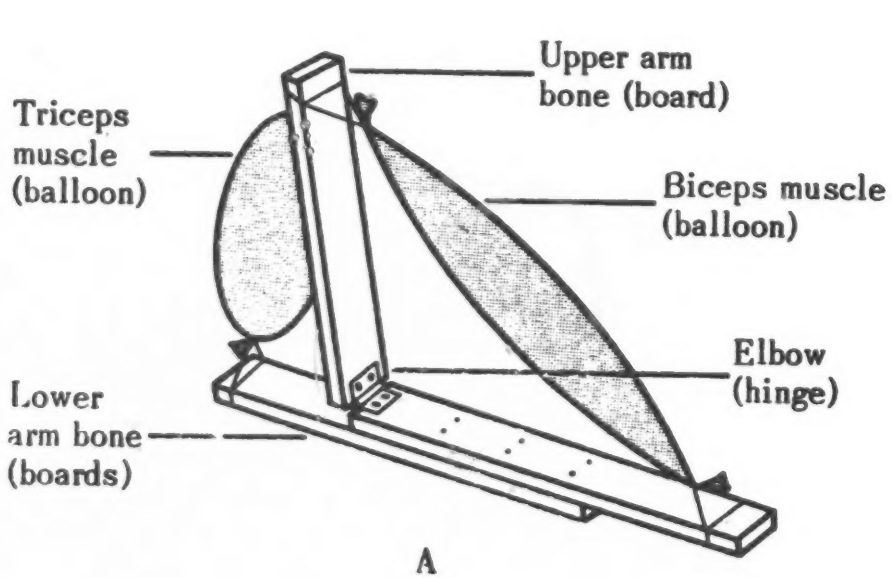
CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. In what way does the skin contribute to the health and optimum functioning of the individual? (cont.)	Discuss the potential dangers from overexposure to the sun. Ask pupils to cite several reasons for washing the hands frequently, especially before eating and after toileting. Discuss the function of the fingernails and toenails. Ask each pupil to check his fingernails. What are the hazards of dirty, jagged, and broken fingernails and of hangnails? Emphasize proper care of cuticles. Arrange a display of instruments for the care of the nails. Demonstrate the use of each instrument. Ask a pupil who has lost a fingernail to describe how nails grow. Describe the condition and cause of ingrown toenails. Discuss ways to maintain well-groomed fingernails and toenails. Evaluate the use of nail polishes by girls, and of products for making the nails grow. Stress the relationship of clean, well-groomed hands and fingernails to social acceptance. Discuss the habit of nail biting. Discuss the importance of bathing and drying the feet thoroughly. Analyze the cause, care, and prevention of "athlete's foot." Why is the wearing of socks or peds important in the prevention of "athlete's foot?"	Charts. Bones of the Foot Requisition for Consumable Supplies for Junior and Senior High Health Education, #813117.
The selection and use of cosmetics and skin preparations should be based on sound knowledge and mature judgment.	Lead discussion regarding the relative merits of soaps and creams as cleansing agents. Point out that most soaps are valuable not only as cleansing agents but also as a means of providing anti-bacterial action. In addition, they help in the removal of dead skin. Demonstrate the emulsifying action of soap. Ask for two volunteers to rub their hands with oil or grease. Instruct one pupil to wash his hands by rubbing soap on them while holding them under running water. Request the other pupil to wet his hands, to soap them, and then to produce enough lather to enable the soap to emulsify	Scott, Foresman Series. Book Seven. pp. 190-192.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. In what way does the skin contribute to the health and optimum functioning of the individual? (cont.)	the dirt. Pupils should next rinse and dry their hands and press them against notebook paper or brown wrapping paper. Note translucent spots from oily hands. Place a drop of cooking oil in each of two test tubes which are partially filled with water. Add a few drops of liquid soap to one of the tubes. Shake both tubes well, and compare the results. Suggest reasons why creams and oils should be used sparingly on oily skin or oily hair. Why is a liquid shampoo better than cake soap for washing the hair? Caution against the use of chemical or abrasive hair removers to eliminate unwanted hair. Point out that shaving neither makes hair grow more rapidly nor makes it more coarse. Appoint a committee to arrange a mock display of the toilet articles and skin preparations that the members believe a junior high school boy or girl would use in skin care and grooming. Next, ask the class to evaluate each of the recommended items in terms of purpose, appropriateness for use by junior high school pupils, necessity, and benefits. Request the original committee to revise its display on the basis of class evaluations.	
D. How does posture contribute to the appearance and optimum functioning of the individual? A person's posture reflects his physical and emotional health.	Ask pupils to suggest a simple definition for the term "posture," such as "the way one carries, or uses, the body at work, rest, or play." Use pictures to show how posture contributes to personal appearance. What does a person's posture convey about his self-confidence, mental outlook, and general health? Ask pupils to role play situations which depict how moods and feelings are reflected through posture. Display pictures of noted personalities whose posture reflects self-confidence, poise, and purpose.	Scott, Foresman Series. Book Seven. pp. 122-129.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	Use charts and models to present an overview of the body framework. Distribute charts of the human skeleton, and request pupils to label the main parts. Discuss the functions of the skeleton. Point out that it	Charts. Human Skeleton. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813276
Proper body alignment helps to promote optimum growth and body functions.	--Provides a framework for the body.	
	--Protects the vital organs	
The skeleton provides the basic framework of the body.	--Forms a system of levers by which muscles attached to the bones enable the body parts to move.	Today's Health Guide. American Medical Association. Chicago, 1965. pp. 74-77.
	--Produces red blood cells.	
	--Provides a source of calcium when needed to maintain the heart beat, to clot blood, and to contract muscles.	
	Ask the class to suggest reasons why the human skeleton consists of about 270 bones at birth and only 206 bones at maturity.	
	Ask for volunteers to bring discarded X-rays to class. X-rays may be illuminated by mounting them on the window glass or by projecting them onto a screen with the overhead projector. Request a report on William Roentgen. Discuss the significance of X-rays in medical diagnosis and treatment.	Scott, Foresman Series. Book Seven. pp. 122-128.
	Construct a representation of the spinal column, using spools which have been strung on a cord alternately with sponge rubber pads.	
The bones of the skeleton come together at joints, permitting the body to move in a variety of ways.	Point out that the bones are held together by tough, fibrous bands called ligaments. The junctures where the bones articulate are called joints. Use a model or chart to present examples of the various kinds of body joints, such as the following:	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	Ball and socket (rotation) hip joint Hinge (back and forth) knee Sliding (multidirectional) ankle and wrist Pivotal (partial rotation) lower arm Immovable (no movement) skull Ask pupils to demonstrate various movements which illustrate the action of each type of body joint.	
The muscles produce movement, give the body form, and make possible the body's erect posture.	Display charts and models of the body musculature. Explain that --Muscles consist of fibrous bundles. Each fiber is about the breadth of a human hair and is capable of supporting approximately 1,000 times its own weight. --There are three types of muscle tissue among the 450 or more muscles which make up the human body: skeletal (voluntary), visceral (smooth or involuntary), and cardiac. The muscles give form to the body and make up 40 to 50 per cent of the total body weight. --The skeletal muscles are attached to bones by tough, cordlike tissues called tendons and by fascia. --Muscles enable the body parts to move by contracting (shortening and thickening) and by lengthening (stretching). --Each skeletal muscle has an antagonistic action. Muscles which move body parts toward the center of the body, or reduce the angle between adjacent bones, are called flexors. Those muscles which straighten a limb or move it away from the center of the body are called extensors.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	-- Muscles work according to the principle of levers, using one bone to help move another. The muscle attachment at the anchor bone is called the origin. The attachment at the bone which moves is called the insertion. Construct a simple device to demonstrate how muscles work in pairs. As one muscle contracts, the opposing muscle relaxes. The action of the biceps and triceps may be used as an example. Direct pupils to straighten the right arm. Next, ask them to place the left hand on the muscle in the right upper arm. Request pupils to describe what they feel. Point out that the biceps muscle contracts or becomes thicker and shorter. Rubber bands also may be used to help illustrate this principle.	



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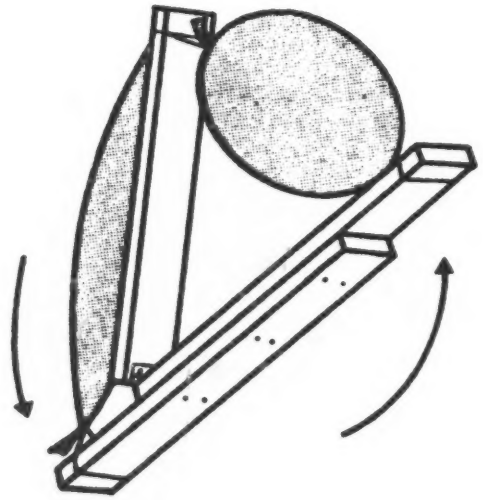
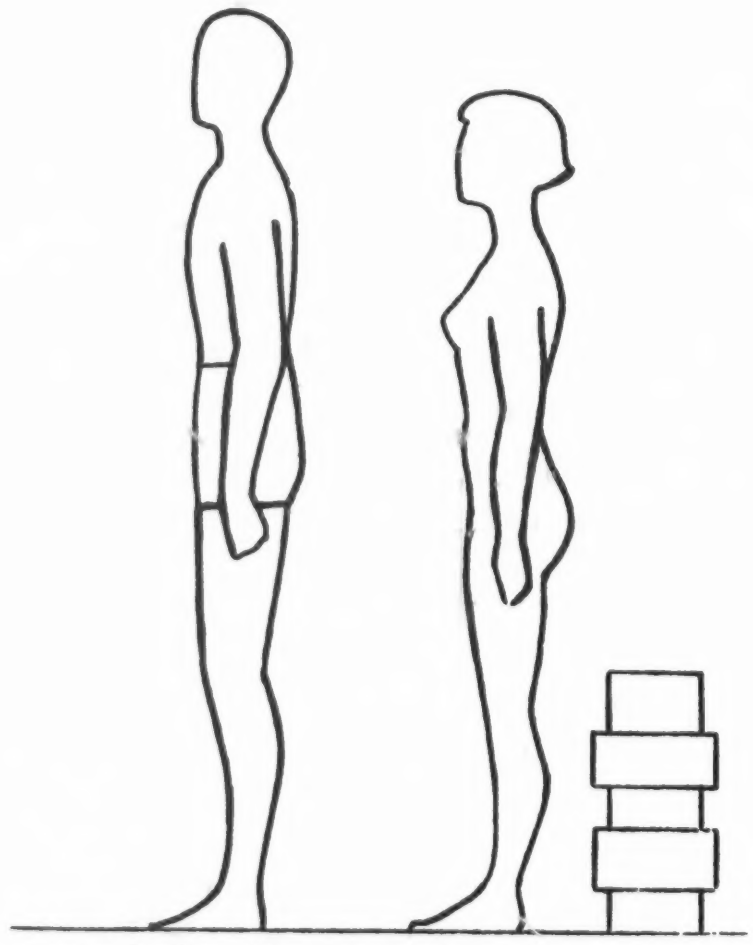


B

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	Emphasize that sufficient muscular development is necessary to hold the body in an erect position against the pull of gravity and to keep the various body segments in proper alignment. Ask a pupil who has had a broken arm or leg to explain what happens to muscles when they are not used for a long period. Discuss the role of exercise in increasing muscular strength, in firming up flabby muscles, and in contributing to posture improvement. Discuss how correct posture and proper use of the musculature help to promote optimum growth and body function and to prevent undue strain and injury. Instruct pupils to breathe deeply several times while seated in a forced round-shouldered position and then to repeat the procedure in a tall-sitting position. Ask pupils to suggest reasons for noted differences. Ask pupils to explain why walking in a toe-out position causes undue strain on the feet. Discuss differences in the efficiency of other movements, such as lifting or throwing an object correctly or incorrectly. Illustrate with a stack of books or blocks how proper body alignment, like any other structure, begins from the "ground up" and depends upon the relationship of one part of the body to another. Each body segment should be directly over the segment below. (Arrange the stacked books to represent balanced posture; then exaggerate postural curves to dramatize how the entire structure may be thrown off balance by disrupting the relationship between various segments.)	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)



Note that correct body alignment, like any other structure, begins from the ground up and that each body segment should be directly over the segment below.

Point out that posture guides, or cues, are helpful in assisting the pupil to attain his best posture and that variations in general body build contribute to individual postural differences.

Display pictures, charts, and models showing correct body alignment. Ask pupils the question, "To what extent do the forces of gravity affect body alignment?" Discuss briefly the role of the muscles in body alignment

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	Use a plumb line and a full-length mirror to demonstrate correct body alignment. Develop with pupils a list of postural cues to assist them in conducting their own posture checks. Assign partners to check each other's posture. Request the class members to stand and review the correct postural cues:	

Standing

1. Feet parallel and 2 or 3 inches apart; body weight borne equally on the heels and the balls of the feet
2. Knees straight but "easy," kneecaps directed straight ahead
3. Pelvis level
4. Lower abdomen flat
5. Spine extended
6. Chest high
7. Shoulders level and "easy"
8. Arms hanging in a natural position at sides, palms facing body
9. Head erect, chin level
10. Each body segment directly over the segment below
11. A plumb line should pass through the following points

For Side View	For Front View
Front of ankle joint	Between ankles
Back of kneecap	Between knees
Center of hip joint	Through navel
Tip of the shoulder	Center of sternum
Lobe of ear	Along bridge of nose
	Between eyebrows
	Center of head

Ask a pupil to demonstrate proper sitting posture, assuming that he is a platform guest who is seated before a large audience. Review postural cues for correct sitting posture while working at a desk. Instruct class members to check

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)

correctness of sitting posture with partners, noting particularly the following:

Sitting

1. Feet close together, parallel, or one foot in front of the other
2. Hip, knee, and ankle joints flexed at approximately right angles to the trunk
3. Hips well back in the chair, the lower back and the upper back touching the chair
4. Abdomen flat
5. Shoulders "easy"
6. Head high with the chin level
7. Body erect with all segments aligned. (When leaning forward to work at a desk, bend slightly at the hips and keep the head and trunk in line with the hips. For change of position, cross feet at the ankle joint.)

Analyze correct walking posture. Instruct class to develop and apply a self-check list for correct walking posture. Review such postural cues as the following with pupils:

1. Body is erect with all segments aligned.
   --Feet parallel, pointing straight ahead
   --Kneecaps pointing straight ahead
   --Abdomen flat
   --Chest high
   --Chin level
   --Head erect, head over shoulders, shoulders over hips
2. The leg swings forward from the hip, toes pointing straight ahead. The body weight falls first on the heel, then the foot, and finally on the ball and toes of the foot. The toes push off for the next step.
3. The body weight shifts smoothly and rhythmically, permitting the arms to swing freely and in

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	alternation with the legs. 4. The body moves as a complete unit, with the thighs and the chest leading forward and the head held high. Use sketches and models to help describe the most frequent postural faults of pupils. Discuss the role of exercise in achieving and maintaining correct posture. Consult with the corrective physical education teacher, and arrange for a committee to demonstrate exercises to help correct common postural deviations.	
Correct posture, cleanliness, and appropriate footwear are basic to foot health.	Stress the relationship of the feet to general posture and fitness. Show how improperly fitted shoes and socks can deform the feet. Mention that bunions, calluses, corns, and other foot problems are caused by improperly fitted shoes and socks. Discuss the dangers of infection resulting from blisters. Stress that proper foot health helps to prevent accidents. Emphasize that: 1. The foot is prone especially to such injuries as fractures, sprains, bruises, puncture wounds, and cuts. 2. Fractures and sprains result from unusual forces on the foot when it is out of position, as in turning the ankle or tripping. 3. Cuts and puncture wounds are more likely to occur when a person is barefooted than when wearing shoes. Puncture wounds, splinters, and cuts can result in tetanus (lockjaw). --Prior immunization prevents tetanus in case of injury. --A booster shot should be obtained at the time of injury. 4. Injuries are likely to occur on stony and uneven surfaces, around rocks, in bushy fields, and in the house and yard.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How does posture contribute to the appearance and optimum functioning of the individual? (cont.)	Arrange for pupils to make prints of their feet. Analyze shape of arches, weight-bearing points, and deviations which affect posture. Consult the corrective physical education teacher regarding instructions for foot exercises and other information. Discuss the selection of appropriate footwear. Appoint a pupil committee to select footwear for various occasions. Ask committee members to defend their choices on the basis of standards established during a previous class discussion. Instruct pupils to appraise the way in which their own shoes fit. They first should trace the bare foot with the weight on it and then put the shoe on and trace the foot. Pupils should compare the two drawings. Assign pupil committees to devise a list of health practices for foot care. Following is a suggested list: -- Wear appropriate footwear with properly fitting shoes and socks. --Stand and walk correctly. --Bathe feet frequently and dry thoroughly. --Keep feet dry. --Change shoes and socks frequently. --Trim toenails straight across. --Eat properly and avoid excessive weight. --Guard against infection and accident. --Avoid self treatment. --Exercise regularly and obtain adequate rest. Request each pupil to submit a description of a series of exercises in terms of his own postural needs. Evaluate the purposes of the city-wide posture contest. Discuss the criteria that are used in judging appropriate body alignment.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does eye health affect the well-being of an individual?	Display photographs that are out of focus and blurred to illustrate how visual defects may affect what a person sees.	Scott, Foresman Series. Book Seven. p. 278.
A person's capacity to function is dependent largely upon his ability to see.	Arrange a bulletin board display of the special sensory organs. Use charts and dissectable models to review the basic parts of the eye and to explain how the normal eye functions.	
An object is visible because light reflected from it reaches the photo-sensitive nerve cells of the eye.	Point out that vision is impossible in the absence of light. Ask pupils to recall experiences when they were unable to see because of darkness, such as when entering a movie theater, or an unlighted tunnel.	
The eye is a complex organ which functions like a camera.	Compare the structure and function of the human eye with those of a camera. Indicate that both the eyeball and the camera are enclosed, lightproof structures. Like the camera, the eye has a lens system for focusing reflected light onto a sensitive surface (the retina). The specialized nerve cells (rods and cones) of the retina transmit the visual impulses through the optic nerve to the brain, where the image is formed.	Charts. Eye. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813251.
Because the eye is made up of many different types of tissues and structures, it may be affected by a variety of defects, injuries, and diseases.	Ask each pupil to look at his eye with a pocket mirror and to locate as many parts as he can. Point out that: --The eyeball has three coats or layers: A tough, outer layer (the sclera), which serves as a protective covering; a middle layer (choroid), which contains blood vessels to nourish the eye; and an inner layer (the retina), which is composed of light-sensitive cells. The point where the optic nerve enters the retina is referred to as the "blind spot." --The cornea is the transparent outer covering in front of the pupil. It is an extension of the sclera.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E How does eye health affect the well-being of an individual? (cont.)	Irregularity of the surface of the cornea produces blurred vision, or astigmatism. Damage to the cornea through illness or injury may result in blindness. --The iris is the colored portion of the eye. By regulating the size of the pupil, the iris controls the amount of light entering the eye. --The pupil is the opening in the iris through which light passes to the lens. By looking through the pupil with an ophthalmoscope, a physician can examine the retina as well as other parts of the eye. --The lens is the transparent structure which focuses light rays onto the retina. Small muscles controlling the shape of the lens permit it to adjust to near and distant vision. --The aqueous humor is the fluid which fills the area between the lens and the cornea. It helps to focus light rays and give form to the eye. --The vitreous humor is a jelly-like substance which fills the area back of the lens. It helps to shape the eyeball. --Muscles attached to the eyeball control the movements of the eyes and enable them to work in a coordinated fashion. When these muscles do not work together, a condition commonly known as "cross-eyes" results. Prescription glasses usually are required to correct this condition. Arrange a demonstration to show that the amount of light entering the eye is regulated by the size of the pupils. Assign the class to work in small groups. Ask for a volunteer in each group to close his eyes for about 30 seconds and then to look into a bright light. Instruct the group members to observe the eyes of the volunteer to note changes in the size of his pupils.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does eye health affect the well-being of an individual? (cont.)	Allow class members to test how quickly the lens of the eye adjusts from distance vision to reading by looking at an object on the wall and then trying to read. Blurred vision will occur for a few seconds until the eye adapts itself to the sudden change in distance. Ask class members to hold a finger in line with a picture or object on the wall. Direct them to look at the finger to note how well they are able to see the picture. Next, ask them to look past the finger at the picture and to note how well they can see the finger. Show diagrams of eye defects in which images are focused improperly on the retina. Request the pupils to make drawings of the normal, nearsighted, and farsighted eye. Demonstrate how different lens shapes may be used to correct errors in focusing. For example:	
Visual defects which prevent light rays from focusing properly on the retina are called refractive errors.	--Nearsightedness (Myopia). Images of distant objects fall in front of the retina. Prescription glasses containing concave-shaped lenses usually are required to correct this defect. --Farsightedness (Hyperopia). Images of close objects fall far behind the retina. Prescription glasses containing convex-shaped lenses usually are required to correct this defect. --Astigmatism. Light rays reflected from images fall in front of and behind the retina, causing uneven focus or blurred vision.	
Periodic eye examinations and screening tests are important ways to assure eye health.	Explain the nature and purposes of screening tests for impaired visual acuity, color blindness, and muscle balance. Discuss the need for periodic eye examinations and screening tests. Display a copy of the Snellen Eye Chart. Explain that the letters on eye charts are constructed according to scale so that a person with normal vision can identify them at a standard distance.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E How does eye health affect the well-being of an individual? (cont.)	A person has normal vision for distance if he can read the appropriate line on a chart from a distance of 20 feet. Results of eye tests are recorded in fractions. The numerator indicates the distance of the person from the chart, and the denominator refers to the line of smallest type which was read correctly. Discuss the nature of color blindness. Point out that this is an inherited trait which occurs occasionally among men but rarely among women. Display a copy of the color-plate test, if available. Devise a test for determining colors by assembling small samples of many pieces of yarn of varying colors. Show various pieces of yarn to the class and ask pupils to indicate each color by writing its name on a sheet of paper.	
Precautions should be taken to protect the eyes from infection or injury.	Cite some of the causes and symptoms of eye infections, such as pink eye. Styes are infections of the eyelash root or of the marginal glands of the eye. Discuss the hazards in the use of eye make-up by girls. Discuss the effects of sunlight and glare on the eyes. Point out that excessive exposure to sunlight reduces a person's ability to see well at night or under artificial light. Emphasize that sunglasses do not screen out all the powerful rays of sunlight that can cause injury to the eyes. Persons should be cautioned never to look directly into the sun, even with sunglasses. Ask a pupil to report on night blindness. Discuss the use of adequate lighting for various tasks. Use a light meter to test intensity ar various locations in the school, such as the following:	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

E. How does eye health affect the well-being of an individual? (cont.)

Locations	Recommended Footcandles
Classrooms	30
Typing and Sewing Rooms	50
Gymnasium	20
Auditoriums and Cafeterias	10
Locker Rooms and Washrooms	10
Corridors and Stairways	10

Discuss the removal of foreign bodies from the eye. Point out that the safest way to remove sand or cinders from the eye is to stimulate the flow of tears by gently pulling the upper lid over the lower lid. If this method does not work, a physician should be consulted as soon as possible.

Scott, Foresman Series. Book Seven. p. 158.

Emphasize the measures utilized in first aid care when the eye has been subject to chemical burns.

Assign a pupil to report on the nature of contact lenses.

Ask pupils to develop a list of health and safety practices for protection of the eye. Following is a suggested list:

1. There should be adequate light while studying or reading. Poor lighting is a common cause of eyestrain. For reading or writing at home, a pupil should have a 100-watt shaded bulb or a fluorescent lamp that throws the light over the shoulder directly on the work. In addition to the individual lamp, the whole room should be lighted to avoid excessive contrast. When reading, a pupil should hold his book at right angles to the line of vision.
2. The light should come from behind a person and far enough to the side to avoid his shadow.
3. Objects, particularly those which are sharp, should be kept away from the eyes.
4. Books should be held at least 14 inches away from the eyes when reading.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does eye health affect the well-being of an individual? (cont.)	5. Persons should not read on the floor nor in moving vehicles. 6. If eyeglasses have been prescribed, they should be worn. 7. Well-balanced nutrition, including sufficient vitamin A, aids eye health. 8. When watching a long movie or while reading, a person should occasionally close the eyes or look at a distant object for a moment. 9. A few winks help wash the eyes and relieve muscular tension. Instruct pupils to learn about the specialized roles of the following: --Ophthamologist (Oculist). An eye physician (M.D.) who measures vision, prescribes glasses, treats eye disease, and performs eye surgery. --Optometrist. A specialist who measures vision and prescribes glasses but who is not a physician. --Optician. A technician who grinds lenses. Devise a list of situations involving eye problems. Ask pupils to indicate the specialist whom they would contact for advice concerning each problem. A list of signs and symptoms which may indicate eye difficulties follows: --Difficulty in seeing at the normal distance --Failure in work when assignment or instructions are written on the chalkboard --Frequent styes or scaly, ulcerated, or swollen lids --Teary, discharging, or inflamed eyes --Eyes rubbed frequently --Crossed or divergent eyes --While reading, the pupil may blink frequently, tilt head to one side, frown or squint, shut or cover one eye, or hold book too closely or too far away	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does eye health affect the well-being of an individual? (cont.)	--Stumbling or tripping over objects --Frequent headaches --Sensitivity to light --Headaches or nausea and vomiting after close work --Blurred or double vision	
F. How does ear health affect the well-being of an individual?	Discuss the importance of sounds and hearing in learning. Ask the pupils to name several occupations which require that a person be able to hear well. Request them to list occupations in which persons with hearing loss can be successful.	Scott, Foresman Series. Book Seven. p. 279.
A person's capacity to function is enhanced by his ability to hear.		
Sound waves are produced by vibrating objects.	Illustrate how sound vibrations which pass into the ear eventually are interpreted as the sounds that we hear. Strike a tuning fork; then place the vibrating fork into a beaker of water. The water will splatter violently, showing that the fork is vibrating. Through the use of a bell in vacuum equipment, point out that air pressure is necessary for the transmission of sound waves.	
	Instruct pupils to list as many different kinds of sounds as they can recall. Ask them to explain why a specific whistle which is used to signal a dog cannot be detected by the human ear. Discuss the audible range of tones for the normal ear (approximately 16 vibrations per second to 20,000).	
Sounds are audible because the mechanisms of the ear are able to receive and transmit sound waves to the brain for interpretation.	Point out that musical notes are produced by regular vibrations (sound waves emitted at even rates) and that noises are produced by irregular vibrations (sound waves emitted at uneven rates). Note that the sounds which we hear are either musical notes or noises, or combinations of the two.	
	Use charts and dissectable models to review the basic parts of the human ear and to explain how it functions. Point out that the ear is divided into the following parts:	Wall Chart Model

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does ear health affect the well-being of an individual? (cont.)	--The outer ear, for receiving sound vibrations --The middle ear, for transferring sound vibrations to the inner ear --The inner ear, for transposing sound vibrations into nerve impulses, which are then conducted to the auditory centers of the brain. In the brain, the impulses are interpreted as sound. The inner ear also contains the semi-circular canals which help to maintain equilibrium. Discuss how the ear is protected against dirt and other foreign bodies by tiny hairs in the canal and by wax secreted from glands. Explain how the wax sometimes becomes hardened and obstructs hearing. Use models and charts to illustrate the relationship of the ears to the nose and throat. Discuss the function of the eustachian tube. Illustrate how changes in air pressure affect the eardrum. Stretch a piece of rubber sheeting across the large opening of a funnel. Secure the sheeting in place. Blow into the small opening of the funnel (eustachian tube) and note that the sheeting (eardrum) will bulge outward. Draw air out of the funnel so that the sheeting will bulge inward.	Charts, Ear. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813230.
Periodic screening tests are important to ear health.	Discuss the importance of periodic ear examinations, including hearing tests. Cite some of the effects of hearing impairment on language and speech development. Review the purposes of the school audiometry program and its procedures. Invite the audiometrist to talk about hearing tests and to explain what the results indicate. Point out that hearing loss is measured in decibels. The decibel is a unit of sound intensity, representing the smallest change in amplitude (volume) that can be detected by the normal human ear. At a distance of	Scott, Foresman Series. Book Seven. p. 279.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does ear health affect the well-being of an individual? (cont.)	four feet, an average whisper produces 20 decibels. Note that all hearing tests are performed on instruments called pure-tone audiometers, which emit tones that range from a growl to a high squeak. The amplitude of the tones is set at 10 or 15 decibels, depending on the room noise. If a pupil responds to all tones at this amplitude, his hearing is considered normal. If he does not hear the tones, the audiometrist tests to determine at what volume the subject begins to hear the tone faintly. Emphasize that screening is only a preliminary procedure and that pupils with significant hearing loss, or who are suspected of having other ear difficulties, should be referred to a physician.	
Precautions should be taken to protect the ears from infection or injury.	Point out that infections of the middle ear are a major cause of hearing impairment. Review how infections may reach the ear through the eustachian tube. Some of the infections are the common cold, tonsillitis, sinusitis, measles, and scarlet fever. The infection may spread to the mastoid bone which adjoins the middle ear, causing mastoiditis. Discuss some of the ways in which swimming and diving may affect the ears. List several ways in which accidents to the ears may be avoided. Use a model to demonstrate how to clean the ear with a soft damp cloth. Explain that probing the ear with a sharp object, such as a toothpick, hairpin, or matchstick, is dangerous to the eardrum. Relate the effects of loud and continuous noises on the ear. List the common signs of ear difficulty. Emphasize that accumulations of wax should be removed by a physician and that pain in the ear, discharge, or other	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does ear health affect the well-being of an individual? (cont.)	abnormalities also require his services. In special cases, an otologist may be needed. Assign a pupil to report on the nature of his services. Utilize the following questions as a self check list for pupils: 1. Do I frequently ask that words or phrases be repeated? 2. Can I hear conversation as easily as my friends? 3. Can I hear a dripping faucet in the room? 4. Can I hear a person when my back is turned toward him? 5. Do I strain to hear, or habitually turn one ear toward a person who is speaking? 6. Do I wash my ears with a clean, soft cloth held over the finger tip? 7. Do I wipe my ears dry? 8. Do I often experience an earache or ringing in the ears? Ask pupils why they sometimes have difficulty in tasting food and why their ears feel stopped up when they have a cold.	
Care of the nose and throat is an important aspect of ear health.	Instruct pupils to hold their noses and to breathe through their mouths for several seconds. Discuss why it is better to breathe through the nose than through the mouth. Discuss how the nose and tongue function as sensory organs. Demonstrate the relationship between taste and smell by asking pupils to try eating a small piece of onion while holding their noses. Point out that the tongue has special kinds of nerve endings called taste buds. Ask pupils to list some of the different tastes which are familiar to them. Explain that the nose has nerve endings which react to odors. The impulses are transmitted by the olfactory nerve to the brain. When a person is eating, the tastes which	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does ear health affect the well-being of an individual? (cont.)	he distinguishes are a result of the sense of smell as well as that of taste. Discuss the importance of periodic health checks of the nose and throat. List ways of protecting the nose and throat from infections and irritants. Discuss the use of nasal drops and sprays to combat colds and sore throats. Demonstrate the first aid procedures for nosebleed.	
G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum functioning of the individual? Boys and girls need proper amounts of rest and sleep to achieve maximum physical and mental performance. Persons may differ in the amount of sleep that they require.	Instruct pupils to estimate the number of years spent in sleep during a normal life of 70 years. Show how approximately 23 years, or one-third, of a person's life is spent sleeping. Discuss the purposes of sleep. List and chart the physiological changes which take place during sleep. Compare the amount of energy used during sleep with the amounts required for other activities. Report findings of recent studies on sleep. Stress the importance of proper amounts of rest and sleep to physical and mental performance. Instruct pupils to keep a record of their own sleep pattern for several days to determine the amount of sleep which they require. Discuss and compare individual requirements, and show how these needs vary among individuals. Show how the amounts and types of activity engaged in affect sleep requirements.	Scott, Foresman Series. Book Seven. pp. 94-108.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum functioning of the individual? (cont.)	Ask pupils to write about an experience illustrating the effects of insufficient sleep on their behavior during the following day. Assign a group of pupils to dramatize the effect of insufficient sleep on a person's attitude, behavior, and reactions toward others. Discuss the relation of environmental conditions to sleep: ventilation, firmness of mattress, size of pillow, amount of covers, light, sound. How can emotions affect sleep? Ask pupils to describe the position which they find most comfortable for sleeping. Show how these choices vary among individuals. Emphasize that there is no one best position for sleeping. Ask pupils the question, "How many of you think that you slept 'like a log' last night?" Point out that sleep patterns consist of periods of both deep and light sleep and that changes in position during sleep occur frequently. Discuss the use of the electroencephalograph and other instruments in the scientific study of sleep.	
Fatigue may be the result of a variety of causes.	Ask pupils to discuss tips on getting to sleep. Describe some of the signs and symptoms of fatigue. How does your body communicate these signs and symptoms? Direct pupils to perform a fatigue experiment. Extend right arm to shoulder height. Open and close right hand rapidly until unable to continue. Ask pupils to describe results, orally or as a written exercise. Discuss the causes of fatigue. Show how exercise can help prevent as well as cause fatigue. Request that several pupils illustrate through role playing how a person's surroundings can cause tension and fatigue.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum functioning of the individual? (cont.)	Analyze the value of occasional changes of activity as a method of preventing fatigue. Discuss the relation of posture to fatigue. Describe how fatigue affects performance, behavior, and attitudes. Instruct pupils to make a chart of suggested ways of preventing fatigue. Assign pupils to keep a record for one day of the activities which they found to be noticeably fatiguing. Discuss the various kinds of activities reported.	
Physical fitness is the ability to play and work hard, without undue fatigue, and with energy left to meet the demands of daily living.	Discuss how physical activity and recreation contribute to health and total fitness--physical, mental, emotional, and social. Explain the effects of physical activity on the physiological functioning of the normal heart, lungs, and other organs. Point out that the heart and blood vessels are muscle tissue and, as such, are strengthened and developed through proper exercise. Demonstrate variations in the pulse rate as a result of exercise. Instruct pupils to take their pulse rates while sitting quietly and to record the results. Next, ask them to stand and touch the floor 10 times in quick succession and to take their pulse rates. After two minutes, ask them to take the rates again. Discuss the results. Cite the values of physical exercise to the development of muscular strength, endurance, coordination, and posture. Assign a group of pupils to investigate and report on the purpose and values of physical fitness tests. Ask pupils to demonstrate the tests as part of the report.	Scott, Foresman Series <u>Book Seven</u>. pp. 111-121.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum functioning of the individual? (cont.)	Assign pupils to write a report on the importance of daily physical activity to health and total fitness. Discuss the meaning of the word "recreation." Instruct pupils to list their favorite recreational activities and to report the results to the class. Ask several pupils to discuss their favorite activities. Discuss the variety of recreational activities available to pupils at school and in the community. Assign a pupil to report on the activities offered through the youth services program at the school.	
A balanced program of work, rest, and recreation requires individual planning.	Illustrate by means of a schedule the need for planning the amounts of time spent at work, rest, and recreation. Discuss why it is a poor practice to leave assignments and tasks for completion until the time that they are nearly due. Ask pupils to report on an unsigned slip of paper the number of hours spent each day watching television. Appoint a committee to review the replies and to lead discussion on the television viewing habits of class members. Ask the class to list suggested practices for the use of television, including the time to be spent viewing and the kinds of programs to be selected.	
Appropriate dress contributes to a healthy, attractive appearance.	Discuss the function and care of clothing. Stress the importance of clean undergarments and of a daily change of socks. Assign pupils to prepare exhibits and posters showing appropriate clothing for various occasions and during certain types of weather conditions. Ask pupils to present a skit dramatizing appropriate and inappropriate dress and grooming. Instruct pupils to list the various elements which contribute to grooming. For example:	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
G. How does a balanced program of rest, sleep, physical activity, and recreation contribute to the optimum functioning of the individual? (cont.)	Cleanliness: Daily bath; care of hair, hands, and nails; clean and appropriate clothing, undergarments, and socks. Tidiness: Straight hemline, shoes in repair, buttons in place, zippers in working order, clothing pressed and free of spots. Ask pupils to define what is meant by "good taste." Consider such terms as moderation, gaudiness, appropriatness, and individuality. Who are some famous personalities whose special qualities have given them a distinctive appearance? Use a question box for pupils to present their views and problems concerning appropriate clothing and grooming. Select problems from this source for use in discussion groups of five or six pupils. Ask each group to report a solution to the class. Instruct the class to develop a code of grooming practices which may be used as a basis for pupil self-evaluation. Compare this code with existing codes for school dress.	

UNIT III. ACHIEVING PERSONAL HEALTH

IV. EVALUATION

A. Tests and Inventories

1. Surveys and Opinionnaires on Teenage Health Practices.
2. Multiple Choice Tests on Knowledge and Attitudes.
3. Matching-Items Test on Knowledge, Attitudes, and Practices.
4. Essay-Type Examinations on Knowledge, Attitudes, and Practices.

B. Classwork Performance

1. Oral and Written Reports.
2. Contributions to Committee and Class Discussion.
3. Application of Desirable Practices Toward the Solution of Personal Health Problems.

C. Pupil Self-Evaluation

1. Checklists and Rating Scales on Individual Health Practices.
2. Charts Noting Student Progress.

UNIT IV

FOOD FOR GROWTH AND HEALTH

I. SCOPE OF THE UNIT

The food choices which pupils make each day strongly influence their general health, appearance, and fitness. In Unit Four, pupils are provided with opportunities to study the scientific basis of the recommended dietary allowances for their age group and to apply this information in the selection of the kinds and amounts of foods which are necessary to meet these requirements.

The suggested time allotment for the completion of this unit is two weeks. Modification of this time schedule should be based on pupil needs. Teachers should select from the range of activities suggested those which are best suited to the capacities and interests of individual classes.

II. CONCEPTS TO BE DEVELOPED

Proper amounts of the basic nutrients and their appropriate utilization in the body are essential for optimal growth and health.

A. Why does the body need food?

The body is made up of a number of basic substances which are combined into living matter called protoplasm.

Foods furnish the basic materials which are necessary to build body cells, to regulate body processes, and to provide energy.

All the nutrients required by the body are available through use of a variety of foods.

Protein foods furnish the only available source of nitrogen for growth and replacement of body tissues.

The mineral elements required by the body are furnished through use of a balanced diet.

Vitamins act as enzymes to promote chemical reactions which are essential for growth and health.

Carbohydrates, fats, and proteins are the nutrients which supply the body with fuel for heat and energy.

The energy value in food is measured in units called Calories.

Fats provide more than twice the amount of food energy than that which is provided by carbohydrates and proteins.

UNIT IV. FOOD FOR GROWTH AND HEALTH

A. (cont.)

Carbohydrates and fats are made up of the same three basic substances (carbon, hydrogen, and oxygen).

All liquids, as well as solid foods, help to furnish the body with the water which it needs.

B. How is food changed into a form that can be utilized by the body cells?

Through the digestive process, foods are broken down into the simple substances required for cellular metabolism.

The food nutrients and oxygen which are required for cellular metabolism are carried in the blood.

C. What amounts of the basic nutrients does a person require each day?

The amount of nutrients that a person requires daily is influenced by such factors as age, sex, extent of activity, and state of health.

When the Caloric value of food intake is just about equal to Caloric expenditure, the body weight remains relatively stable.

D. Why is it important to develop sound nutritional practices?

The kinds and amounts of food which a person eats affect the way in which he feels, looks, and behaves.

E. What factors should be considered in the selection of foods?

Decisions regarding food selection should be based on the known nutritional needs of the body as well as on principles of wise consumership.

The Four Food Groups provide a convenient guide in the selection of a balanced diet.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Proper amounts of the basic nutrients and their appropriate utilization in the body are essential for optimal growth and health.	Use the cardboard food models provided by the Dairy Council to arrange a display representing the amount of food consumed by a pupil during the previous week. Ask the class members to estimate the combined weight of the food consumed. Does a change in the pupil's body weight account for the food that was eaten? Ask pupils, "What happens to the food that you eat?"	Scott, Foresman Series. Book Seven. pp. 53-58. Mickelsen, Olaf. Nutrition, Science, and You. Washington, D. C.: National Science Teachers Association, 1964. 128 pp.
A. Why does the body need food? The body is made up of a number of basic substances which are combined into living matter called protoplasm.	Point out that the cells of the human body as well as those of other organisms are made up of a number of chemical substances which are combined into living matter called protoplasm. The four elements, oxygen (65%), carbon (18%), hydrogen (10%), and nitrogen (3%), comprise about 96 per cent of the protoplasm. Calcium, phosphorus, potassium, sulfur, chlorine, sodium, magnesium, iron, copper, iodine, and minute quantities of other elements account for the remaining 5 per cent. Emphasize that the chemical make-up of protoplasm differs among the various types of body cells.	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 3-40.
Foods furnish the basic materials which are necessary to build body cells, to regulate body processes, and to provide energy.	Ask pupils to make a graph showing the percentage distribution of elements in a person weighing 100 pounds.	
All the nutrients required by the body are available through use of a variety of foods.	Use atomic models or flannel board displays to review the chemical components of protoplasm and of the basic nutrients. Descriptions of food tests which may be used to identify the presence of nutrients follow: Proteins. Demonstrate that most protein foods when burned have an odor similar to that of burning feathers, hair, or wool. Fill one test tube one-fifth full of milk. Fill a second test tube one-fifth full of simple syrup or fruit juice. Add three-fifth of a test tube full of Biuret solution to each test tube. A purple color indicates the presence of protein. Minerals. Place a small bit of mashed fruit or vegetable	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why does the body need food? (cont.)	in a test tube or evaporating dish. Heat the sample slowly until it disappears. Mineral salts remain as gray or white ash. Repeat, using other foods, such as dry milk and starch. Show how calcium and phosphorus are needed to make bones and teeth strong and hard. Select two chicken bones of equal size. Place one in vinegar or other acid solution and the other in water. The acid in the vinegar should dissolve part of the calcium and phosphorus from the bone, allowing it to bend more easily. (A period of two days is usually required for the action to take place.) Starch. Test a piece of bread and an unsweetened cracker for starch. Place a few drops of iodine solution on the surface. A purple black color indicates the presence of starch. Place chewed cracker in test tube, and test for starch. Sugar. Place one-half teaspoonful of simple syrup in a test tube which is one-fifth full of water. Add a clinitest tablet. A brick red or orange precipitate indicates the presence of simple sugar. Repeat the test, using table sugar. What implications do the results of these tests have concerning the digestion of sugars? Fats and Oils. Rub some butter or lard on a piece of wrapping paper. A translucent spot indicates the presence of fat.	
Protein foods furnish the only available source of nitrogen for growth and replacement of body tissues.	Emphasize that proteins form a basic part of the nucleus and cytoplasm of every cell as well as that of the substances which act as regulators of the body processes. The proteins in the body are built from nitrogen-containing substances called amino acids. During digestion, protein foods are broken down into amino acids. Differentiate between complete and incomplete protein foods. Of the 22 or more amino acids which have been identified as vital to the functioning of the body, 8	Scott, Foresman Series. Book Seven. pp. 62-63.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why does the body need food? (cont.)	must be supplied through food proteins because they are not synthesized in sufficient quantity by the body. These eight are referred to as "essential amino acids." Foods which supply all of them are called "complete proteins." Since proteins which come from animal sources contain all the essential amino acids, they are referred to as "complete proteins." Proteins from plant sources do not contain sufficient quantities of all the essential amino acids; hence, they are called "incomplete proteins." Ask pupils to make a list of protein foods and to classify them as complete or incomplete.	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 60-61. Martin, Ethel A. Nutrition in Action. New York: Holt, Rinehart, and Winston, 1963. 298 pp. Leverton, Ruth. Food Becomes You. Ames, Iowa: State University Press, 1960. 198 pp.
The mineral elements required by the body are furnished through use of a balanced diet.	Ask the class to enumerate some of the ways in which the body uses minerals. Cite the special needs for calcium and iron, especially during the growing years. Ask pupils to identify foods which contain generous amounts of these substances. Discuss how a deficiency of calcium in the diet may affect growth and development. How would a deficiency of iron in the diet affect performance? Hemoglobin, the iron compound of the red blood cell, carries oxygen to all the cells of the body. Define the term "anemia."	Scott, Foresman Series. Book Seven. pp. 63-64. Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 64-65.
Vitamins act as enzymes to promote chemical reactions which are essential for health and growth.	Relate stories concerning the discovery of some of the vitamins. Assign pupils to make a chart enumerating the role of various vitamins in promoting health and in preventing disease. Ask them to identify important food sources which contain these nutrients. Discuss ways of safeguarding the nutritive values of foods during preparation, cooking, and storage. Review the terms "enriched," "fortified," and "restored" in relation to the nutrient content of foods. Illustrate how certain vitamins may be destroyed during food preparation.	Scott, Foresman Series. Book Seven. pp. 65-68. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 184-298.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why does the body need food? (cont.)	Define energy as "the capacity to do work." The cells of the body obtain energy from the oxidation of carbohydrates, fats, and proteins much like that which an engine receives from the combustion of fuel. The body cells receive food and oxygen and give off carbon dioxide, water, and energy. The body needs energy to keep warm and to carry on life processes.	Scott, Foresman Series. Book Seven. p. 69.
	Ask pupils if they have ever seen a marshmallow burst into flame while being roasted, or hot grease catch fire. Demonstrate that foods are fuels which yield energy through combustion. Insert a piece of string or pipe cleaner into a half cube of butter. When ignited, the string will act as a wick and allow the butter to burn. The principle also can be illustrated by removing the shell and skin of a peanut. Dip the peanut in ashes and mount it on a needle imbedded in a cork. Ignite the peanut with a match. The amount of energy released in the burning of a peanut is the same as that given off when a peanut is "burned" in the body. Ask pupils, "What is the difference between the processes illustrated in these experiments?" The following equation may be written on the chalkboard to help compare the processes:	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 20-26; 318-319.
	Fuel + oxygen $\longrightarrow$ Water + carbon dioxide + energy Nutrients + oxygen $\xrightarrow{\text{Enzymes}}$ Water + carbon dioxide + energy	
The energy value in food is measured in units called Calories.	Point out that the energy requirements of the body as well as the energy values of foods are measured in units called Calories. The Calorie is the unit measure of heat which is released from the oxidation of food. The quantity of heat needed to raise the temperature of 1 quart of water (1 kilogram) 1 degree centigrade requires the expenditure of 1 Calorie (1 kcal.). Fill a one-liter flask with water, and apply heat until the temperature is raised 1 degree centigrade.	Scott, Foresman Series. Book Seven. pp. 72-73.
	Devise a simple calorimeter to illustrate how changes in	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why does the body need food? (cont.)	the temperature of water resulting from the burning of a sample of food can be used to determine its energy or Caloric value. To construct a calorimeter, remove one end from a tall juice can, line it with aluminum foil, and punch several air holes in the sides. Use needles to mount a peanut or a sugar cube on a piece of cork. Put the mounted food sample inside the can. Then suspend a small test tube containing 1 cc of water above the sample, and place a centigrade thermometer in the test tube. Record the temperature of the water. Ignite the food sample. When the food sample has burned, again record the temperature. The difference in the temperature of the water before and after heating indicates the number of small Calories released. To convert this number to food Calories, divide by 1000.	
Fats provide more than twice the amount of food energy than that which is provided by carbohydrates and proteins.	Compare the energy value of a specified amount of butter with that of sugar or meat to illustrate that fats provide the most concentrated source of energy. Fats yield approximately 9 Calories per gram as compared with 4 per gram for carbohydrates and protein. The following example may be used to illustrate that one-fourth of a pound of butter contains more Calories than one-fourth of a pound of meat or sugar. $\frac{454}{4}$ x 9 = 1021.5 Calories (butter) $\frac{454}{4}$ x 4 = 454 Calories (meat or sugar)	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 318-319.
Carbohydrates and fats are made up of the same three basic substances (carbon, hydrogen, and oxygen).	Analyze the properties of sugars, starches, and fats. Ask pupils to identify food which may be classified as sugars and starches. Do these foods originate from plant or animal sources? Emphasize that sugars and starches are broken down into simple sugars during digestion. To illustrate this process, ask pupils to note the change in taste of a soda cracker or a piece of raw potato after chewing the food for several minutes. Why are carbohydrates called "quick energy foods"?	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 63-64.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why does the body need food? (cont.)	Ask pupils to identify foods which may be classified as fats. Do the majority of fats consumed by class members come from plant or animal sources? Point out that fats are important to include in the diet because they serve as carriers of the fat soluble vitamins (A, D, E, K) and provide certain fatty acids which are essential for healthy skin.	
All liquids, as well as solid foods, help to furnish the body with the water which it needs.	Ask pupils to cite some of the ways in which the body uses water. Point out that a large percentage of the body is made up of water. Ask pupils to explain why water sometimes is not considered to be a nutrient.	
B. How is food changed into a form that can be utilized by the body cells?	Indicate that food nutrients must be changed into simple substances which can pass into the blood stream for transportation to all cells of the body. Use charts and models to present an overview of the locations and general functions of the various organs which make up the digestive system.	Scott, Foresman Series. Book Seven. pp. 58-60.
Through the digestive process, foods are broken down into the simple substances required for cellular metabolism.	Discuss the digestive changes which occur in the mouth. Illustrate to pupils that foods undergo both physical and chemical changes in the mouth. Ask for volunteers to chew an unsweetened soda cracker for several minutes in order to ascertain changes in its taste. A change in the sweetness of the cracker results from the breakdown of starch to sugar by a digestive enzyme contained in the saliva. Define the terms "enzyme" and "catalyst." Point out that enzymes are protein substances which are manufactured by the body to bring about or accelerate chemical reactions. Explain and/or demonstrate the nature of a catalyst as follows: To ignite a cube of sugar, it is necessary to place a small amount of ash on it. Otherwise, the sugar will melt and carmelize. The ash acts as a catalyst. Discuss the major changes that foods undergo in the stomach.	Charts, Digestive System. Requisition for Consumable Supplies for Junior and Senior High Health Education, #813224. Scott, Foresman Series. Book Seven. p. 59.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. How is food changed into a form that can be utilized by the body cells? (cont.)	Review the changes that foods undergo in the small intestine. Cite briefly the action of various enzyme secretions on the digestion of the basic food nutrients. Discuss the manner in which digested nutrients pass into the blood stream from the walls of the small intestine. Demonstrate the process of diffusion as it relates to movements of liquids across membranes.	
The food nutrients and oxygen which are required for cellular metabolism are carried in the blood.	Point out that the dissolved food nutrients, along with oxygen from the lungs, are circulated in the blood to all body cells. The plasma, or liquid portion of the blood, is the carrier of food nutrients and of the waste products of cells. The disc-shaped red blood cells are the carriers of oxygen and carbon dioxide. Through the process of diffusion, body cells exchange food nutrients and oxygen in the blood for waste products and carbon dioxide. Assign pupils to write a story describing all of the processes involved in the digestion of a hamburger sandwich.	Scott, Foresman Series. Book Seven. p. 60.
C. What amounts of the basic nutrients does a person require each day?	Ask pupils to list some of the factors which determine the daily intake of nutrients required for growth and health. Chart on the chalkboard the recommended dietary allowances for the average boy and girl. The following was provided by the National Research Council in 1964:	Scott, Foresman Series. Book Seven. pp. 72-77.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

C. What amounts of the basic nutrients does a person require each day? (cont.)

RECOMMENDED DIETARY ALLOWANCES - NATIONAL RESEARCH COUNCIL

		Calories	Proteins	Calcium	Iron	Vit. A	Thiamine	Riboflavin	Niacin (Nicotinic Acid)	Ascorbic Acid	Vit. D
		Grams	Grams	Mg.		I.U.	Mg.	Mg.	Mg.	Mg.	I.U.
Boys	12-15	3000	75	1.4	15	5000	1.2	1.8	20	80	400
	15-18	3400	85	1.4	15	5000	1.4	2.0	22	80	400
Girls	12-15	2500	62	1.3	15	5000	1.0	1.5	17	80	400
	15-18	2300	58	1.3	15	5000	0.9	1.3	15	70	400

National Research Council. Recommended Dietary Allowances. 6th rev. ed. Washington, D. C.: National Research Council, 1964. 60 pp.

Contrast recommended caloric needs and nutrient values for boys and girls of different ages. Discuss reasons for differences. Emphasize that the suggestions of the National Research Council regarding the kinds and amounts of food that are required by individuals are the results of research by trained scientists.

Use a chart which lists the nutritive values of foods to evaluate selected diets in terms of meeting the nutritive requirements as set forth by the National Research Council.

Scott, Foresman Series. Book Seven. pp. 74-75.

Assign pupils to list food sources which contain generous amounts of ascorbic acid. Ask class members to identify foods which they would select in order to meet the recommended dietary allowance of 80 mg. of ascorbic acid for teenagers. The foods included in the following list contain a high amount of this nutrient:

Orange (medium, whole)	66 mg.
Cantaloupe (one-half, medium)	63 mg.
Grapefruit (one-half, medium)	50 mg.
Greens (turnip, one-half cup, cooked)	35 mg.
Strawberries (one-half cup, raw)	44 mg.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What amounts of the basic nutrients does a person require each day? (cont.)	Broccoli (one-half cup, fresh cooked) 56 mg. Green pepper (one-half cup, raw) 35 mg. Tomato (1 medium, raw) 35 mg. Make comparisons of the ascorbic acid content of canned, frozen, and fresh fruits and vegetables.	
When the caloric value of food intake is just about equal to Caloric expenditure, the body weight remains relatively stable.	Assign each pupil to compute the number of Calories that he needs each day just to stay alive. Through basal metabolism the body consumes about 1 Calorie per hour for each 2.2 pounds (1 kilogram) of body weight, or about 11 Calories per pound per day. A person weighing 120 pounds, or 55 kilograms. would require 1320 Calories each day just to maintain vital life processes. $1 \times \frac{\text{Body weight}}{2.2} \times 24 \text{ hrs.} = \text{Daily Caloric Requirement for Basal Metabolism}$ Instruct each pupil to compute the number of Calories that were required for his activities during a 24-hour period and his Caloric intake also for the same period. Then ask the pupils to add to this sum the total number of Calories needed by the body for the process of basal metabolism. TOTAL NUMBER OF CALORIES NEEDED FOR ONE DAY For muscular activity ____ Calories For basal metabolism ____ Calories ____ Total Calories needed ____ Total Calories consumed	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 40-71.
	Following are examples of hourly energy needs for different degrees of physical activity for each kilogram (2.2 pounds) of body weight: Sleeping 0.9 Awake, lying still 1.1 Sitting at rest (eating, studying) 1.4 Reading aloud 1.5	Scott, Foresman Series. Book Seven. p. 77.

CONCEPTS	ACTIVITIES AND INFORMATION		RESOURCES
C. What amounts of the basic nutrients does a person require each day? (cont.)	Standing relaxed	1.5	
	Dressing and undressing	1.7	
	Singing	1.7	
	Sewing and knitting	1.6	
	Ironing	2.0	
	Dishwashing	2.1	
	Sweeping	2.4	
	Carpentry (shop)	3.4	
	Light exercise	2.4	
	Active exercise	4.1	
	Severe exercise	6.4	
	Very severe exercise	8.6	
	Walking slowly	2.9	
	Walking moderately fast	4.3	
	Walking very fast	9.3	
	Descending stairs	5.2	
	Ascending stairs	15.8	
	Discuss the diets of athletes. How do their dietary needs differ from the needs of other persons?		
	Study the proposed foods and diet of the space traveler. How do these differ from the foods and diet of persons in other activities?		
	Discuss the concept of "weight control." Point out the factors which should be considered in attempting to control weight. Why is the practice of skipping meals a poor method?		Scott, Foresman Series. Book Seven. pp. 80-84.
	Illustrate the relationship between Caloric intake, Caloric expenditure, weight control, and fitness.		
	Discuss what is meant by "overeating." Cite several reasons why people overeat.		
	Emphasize some of the ways in which overweight affects health and appearance. Illustrate how weight is cumulative. Show how a surplus of 50 Calories per day would result in		

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What amounts of the basic nutriets does a person require each day? (cont.)	an excess of 18,000 Calories a year; or, in terms of body weight, of approximately 3½ pounds. At this rate, how many pounds would a person gain at the end of a five-year period? How many would he gain after 10 years? Point out from the foregoing presentation why losing weight also should be a gradual process. Evaluate the soundness of "crash diets." Develop a list of procedures for gaining weight. Ask pupils to bring to class advertisements of products and devices for gaining and losing weight. Evaluate the materials. Discuss why people purchase these products. What are the psychological appeals which are used in promoting them? Instruct pupils to attempt to find their own optimum weight range. Plan with the school nurse to have each pupil weighed and measured. Use a physical growth record chart or a height and weight chart to help pupils to determine their individual weight range in terms of age and body type. Arrange for pupils who have questions about weight control to consult with the school physician or nurse. Ask pupils to list the kinds of foods which contain the greatest number of Calories in relation to their nutrient value. Illustrate why these foods are often referred to as "empty Calories." Relate the value of exercise in helping to develop and maintain a proper body build or figure.	
D. Why is it important to develop sound nutritional practices?	Show how omitting breakfast affects performance. Request that pupils chart their eating schedules for a 24-hour period by means of a circle graph and count the number of hours between meals. Stress the effects of faulty dietary practices on physical performance. Ask class members to name several "quick energy" foods. Why do mountain climbers usually carry	Scott, Foresman Series. Book Seven. pp. 78-84

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. Why is it important to develop sound nutritional practices? (cont.) The kinds and amounts of food that a person eats affect the way in which he feels, looks, and behaves.	dextrose? Invite the school physician or nurse to discuss the dietary deficiencies of teenagers. Analyze the nutritional habits of class members in relation to these problems. Review the effects of iron deficiency on performance. What are some food sources of iron? Explore the relationship of poor nutrition to posture and fatigue. How are these factors interrelated? Discuss with pupils how the kinds and amounts of food which they eat affect their appearance (skin, hair, eyes, gums, and teeth). Evaluate information concerning the effects of "eating sweets" on dental caries. Assign pupils to prepare a chart showing "hidden sugars" in foods. Evaluate current information concerning the effect on acne of eating excessive amounts of the following: fats; sweets and starches; greasy, fried foods; and pastries. Hold a class discussion on the influences of teenage social activities on dietary excesses. How are dietary practices influenced by such activities as viewing television, studying, and listening to records? Instruct pupils to make a study of what should constitute appropriate party and between meal "snacks." Assign pupils to report on what is being done to improve food practices in this country and throughout the world. Discuss the work of groups which are engaged in this endeavor. Appoint a panel to discuss ways of improving nutritional practices of teenagers. Ask each pupil to analyze the strengths and weaknesses of his own diet and to suggest	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. Why is it important to develop sound nutritional practices? (cont.)	ways of improving it.	
E. What factors should be considered in the selection of foods?	List factors to consider in the selection and purchase of foods. Point out the importance of including a variety of foods in the diet to assure adequate nutrition.	Scott, Foresman Series. Book Seven. pp. 80-91.
Decisions regarding food selection should be based on known nutritional needs of the body as well as on principles of wise consumership.	List suggestions for making foods more appealing. Illustrate how variations in the temperature, flavor, texture, and color of foods at mealtime add variety and appeal. Illustrate how scientific research has made it possible for a wide variety of foods to be available in or out of season. Discuss the problem of stocking a variety of foods aboard nuclear submarines and spacecraft with limited storage facilities. Illustrate why personal cleanliness of food handlers and clean attractive surroundings are important aspects of food selection. Discuss safeguards against food contamination. In what ways is the consumer protected by the Federal Food, Drug, and Cosmetic Act?	
The Four Food Groups provide a convenient guide in the selection of a balanced diet.	Review how food groups should be used as a guide in the selection of foods. Point out that these groupings are based on the recommended dietary allowances of the National Research Council. Distribute copies of the cafeteria menu and request each class member to make choices for his lunch in terms of the Four Food Groups. Instruct pupils to make these selections on the basis of what they ate for breakfast and what they probably will eat for dinner. Appoint a group of pupils to plan an "international" dinner. Ask them to evaluate the dishes which they have chosen in terms of basic nutrients. Show how the Four	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What factors should be considered in the selection of foods? (cont.)	Food Groups can be applied as a guide in the selection of these foods. Request pupils to plan a menu for an outing or hike. Instruct them to explain why each food was included. Arrange for class members to have lunch together. Invite administrators or other members of the school staff to be guests. Appoint pupil committees to write invitations, prepare decorations, set the tables, greet the guests, clean up after the luncheon, and write thank-you notes.	

IV. EVALUATION

Student progress toward achieving the purposes of this unit may be determined in a variety of ways. Following is a list of suggested techniques and procedures:

A. Tests and Inventories

1. Application of Principles of Nutrition. Pupils determine the adequacy of menus in terms of basic dietary patterns, such as the Basic Four Food Groups.
2. Analyses of Misconceptions and Misleading Information on Nutrition. Pupils identify and refute erroneous beliefs and misinformation concerning foods and nutrition.
3. Interpretation of Charts and Tables on Nutritional Data and Weight Control. Pupils solve problems which involve the interpretation of data from tables and charts, such as tables of recommended dietary allowances and charts of height and weight averages.
4. Identification of Reliable Sources of Information. Pupils identify reliable sources for obtaining information on various situations involving nutritional fads, fallacies; and quackery.
5. True-False Statements on Principles of Diet and Nutrition.
6. Multiple-Choice Tests on Knowledge, Attitudes, and Practices.
7. Matching-Items Tests on Knowledge, Attitudes, and Practices.
8. Essay-Type Examinations on Knowledge, Attitudes, and Practices.

B. Performance of Classwork

1. Oral and Written Reports.
2. Participation in Class Discussion.
3. Performance Checks. Problem situations are used to determine the ability of pupils to make wise decisions concerning the use of foods and to apply the principles of nutrition.

C. Student Self-Appraisal

1. Checklists and Rating Scales on Individual Dietary Practices.
2. Self-Appraisal Charts and Records on Weight Control. Pupils keep records of Caloric intake and Caloric expenditure.
3. Student Surveys of Teen-Age Dietary Practices. Pupils keep records of sound and unsound dietary practices observed by survey teams during nutrition and lunch periods.

D. Teacher Observation of Health Behavior

1. Recorded Descriptions of Students' Dietary Practices During Nutrition and Lunch Periods.
2. Rating Scales, Checklists, and Health Records Concerning Students' Nutritional Status.

UNIT V

ADDICTING, HABIT-FORMING, AND OTHER HARMFUL SUBSTANCES

I. SCOPE OF THE UNIT

The purpose of this unit is to acquaint pupils with the dangers of the drug abuse problem, especially as it relates to the individual and to society. Within this context, pupils also are provided with opportunities to study the harmful effects of alcohol and tobacco and to form intelligent decisions concerning their use.

The suggested time allotment for completing this unit is three to four weeks. Modification of this time schedule should be based on pupil needs. Teachers should select from the range of activities suggested those which are best suited to the capacities and interests of individual classes.

II. CONCEPTS TO BE DEVELOPED

Experimentation with stimulants, depressants, and other substances which interfere with the normal functioning of human body processes presents a danger to physical and mental health.

A. How do depressant, stimulant, and hallucinogenic substances affect behavior?

Depressants, stimulants, and hallucinogens are drugs that alter behavior.

A person's responses to his environment are controlled through the nervous system.

All forms of behavior are reactions to stimuli.

Habits differ from reflexes in that they are acquired.

Substances which tend to slow down the activity of the nervous system are called depressants.

Substances which tend to excite the nervous systems are called stimulants.

Substances which tend to alter sensory perception and produce illusions are halled hallucinogens.

Dependence or habituation may arise from repeated use of any drug or substance on a continuous or periodic basis.

Addicting substances produce tolerance (the tendency to desire increases in the dosage) and withdrawal illness when their use is discontinued.

UNIT V. ADDICTING, HABIT-FORMING, AND OTHER DANGEROUS SUBSTANCES

B. Why do people misuse drugs and other harmful substances which tend to alter attitudes and behavior?

The urge to experiment with drugs arises from a variety of reasons.

C. What are the most commonly abused drugs?

Marihuana is a hallucinogenic drug which produces a state of intoxication.

The barbiturates are depressant drugs which produce sedative effects and induce sleep.

The amphetamines are a group of synthetic drugs which stimulate the nervous system and cause sleeplessness.

LSD is a powerful hallucinogenic drug which produces bizarre mental effects, including auditory and visual hallucinations.

The sniffing of toxic chemicals contained in glue and other volatile substances can produce serious mental confusion and cause damage to vital body organs.

The dangerous practice of inhaling aerosol products can produce serious damage to the respiratory system and may result in death.

Aspirin is a depressant drug which in large doses may cause death, especially to small children.

Substances which contain caffeine tend to stimulate the nervous system.

The opiates and their synthetic derivatives are depressant drugs which produce addiction and tolerance.

Morphine is a depressant drug which is used in medicine to allay severe pain.

Heroin is a powerful depressant drug which produces both addiction and tolerance.

D. How can the drug abuse problem be controlled?

The individual as well as the community must share in the development of effective measures for the prevention of drug abuse.

UNIT V. ADDICTING, HABIT-FORMING, AND OTHER DANGEROUS SUBSTANCES

E. How does the use of alcoholic beverages affect the individual and the community?

The kind of alcohol that is used in beverages is made through the process of fermentation.

Beverage alcohol is a depressant substance which slows down the activity of the central nervous system and dulls sensory perception.

The misuse of alcoholic beverages presents an economic burden on the individual as well as society.

F. How does the use of tobacco affect the individual and the community?

Tobacco smoke contains substances which are harmful to the human body.

Tobacco smoke affects the normal functioning of physiological processes.

Tobacco smoke has long term effects on the various systems of the body.

People are motivated to smoke for psychological as well as social reasons.

The use of tobacco products has economic implications for the individual as well as the community.

Fires caused by smoking are responsible for the loss of lives and property.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Experimentation with stimulants, depressants, and other substances which interfere with the normal functioning of human body processes presents danger to physical and mental health.	Point out that depressants, stimulants, and hallucinogens are substances which interfere with the normal activity of the brain and nervous system. In addition, these substances tend to be habit-forming and, in some cases, addicting.	Scott, Foresman Series. Book Seven. pp. 174-176.
A. How do depressant, stimulant, and hallucinogenic substances affect behavior?	Ask pupils, "In what ways is the nervous system like a giant computer-communications system?" Instruct pupils to note the variety of actions that are taking place in their bodies at the same time. Point out that the nervous system is responsible for coordinating all body activity, both voluntary and involuntary, and for regulating internal body reactions (rate of heartbeat, flow of digestive juices, size of blood vessels).	Science Research Associates Series. Facts About Narcotics and Other Dangerous Drugs. pp. 11-31.
Depressants, stimulants, and hallucinogens are drugs that alter behavior.	Use charts, models, and diagrams to present an overview of the nervous system. Review the parts of the nervous system which are responsible for voluntary and involuntary actions. Discuss how the hormones of the body work in conjunction with the nervous system in controlling body functions. Review the role of nerve cells.	
A person's responses to his environment are controlled through the nervous system.	Ask pupils to make a diagram of a reflex arc, tracing the path of a nerve impulse from its origin in the receptors to its terminal point in the effectors. Instruct pupils to prepare a drawing of the cerebral cortex, mapping out the areas that control important activities, such as reasoning, voluntary muscular action, seeing, hearing, and speaking.	
All forms of behavior are reactions to stimuli.	Clarify the meaning of the terms "behavior" and "stimulus." Emphasize that all forms of behavior are reactions to stimuli from both outside and inside the body. Cite examples of voluntary and involuntary actions. Enumerate the senses: vision, hearing, taste, smell, balance, touch (pain, heat, and cold). Ask pupils,	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. How do depressant stimulant, and hallucinogenic substances affect behavior? (cont.)	"How do the senses help us to adjust to our changing environment?" "How do the senses serve as a protective device or alarm system?" Present a series of demonstrations involving the senses, in which the use of one or more is eliminated in each demonstration. For example, ask pupils to write their names on a sheet of paper; then instruct them to repeat the task with their eyes closed. Show how the senses help to enrich life experiences. Ask pupils what images come to their minds immediately in response to words, such as spinach, snow, animal. Illustrate how differences in individual experiences account for the different impressions reported by the pupils.	
Habits differ from reflexes in that they are acquired.	Request pupils to point out the similarities and differences resulting from the following activities: Ask a pupil to sit relaxed on the edge of a table with his eyes closed. Instruct another pupil to tap him just below the kneecap, using the edge of his hand or a rubber hammer. If the action is performed correctly, the first pupil's leg will kick out. This involuntary movement is called a reflex action. Next, ask the pupil to kick his leg out voluntarily. Describe pupil reactions to the sound of school bells and to other auditory and visual signals. Compare pupil reactions to a knee tap with that of a response to an auditory signal to illustrate that both habits and reflexes are performed automatically. Emphasize that habits differ from reflexes in that they are acquired. Review how habits are formed. Ask pupils to list actions that they perform without thinking. Can they remember doing these activities any other way? Request pupils to describe in detail such behavior patterns as brushing the teeth, tying	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. How do depressant, stimulant, and hallucinogenic substances affect behavior? (cont.)	the shoelaces, or working a lock combination.	
	Instruct pupils to list the habits that they would like to change and tell how they would go about changing them. Why are some habits more difficult to break than others?	
Substances which tend to slow down the activity of the nervous system are called depressants.	Define the terms "depressant," "stimulant," and "hallucinogen." Request that pupils construct charts summarizing the effects of stimulants, depressants, and hallucinogens on the nervous system. Cite examples of these kinds of substances. Ask the pupils to suggest reasons why these substances are classified as narcotic and dangerous drugs.	Williams, Richard L., et al. The Drug Takers. New York: Time, Inc., 1965. 126 pp.
	--Depressants have been defined as substances which slow down the activity of the central nervous system and thus affect all of the physiological processes of the body. Examples are the barbiturates (sleeping pills or goof balls); opium, its derivates (codeine, morphine, and heroin), and synthetic substitutes (demerol and methadene); ethyl alcohol; aspirin (acetysalicylic acid); bromides; and tranquilizers (meprobamate). All such substances generally affect the brain centers, with resulting impairment of judgment, vision, hearing, speech, and muscular coordination. Larger doses result in more extensive involvement of the central nervous system and a consequent depression of vital physiological processes (cardiovascular and respiratory).	
Substances which tend to excite the nervous system are called stimulants.	--Stimulants have been defined as substances which tend to excite the nervous system, to speed up the body processes, to cause sleeplessness, and to irritate body tissues. Examples are amphetamine ("bennies," "pep" or "stay awake" pills), cocaine, and such caffeine-containing substances as coffee, tea, and cola beverages.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. How do depressant, stimulant, and hallucinogenic substances affect behavior? (cont.)	--Hallucinogens have been defined as substances which tend to excite the nervous system, to produce hallucinations or illusions, and to distort time and depth perception. Examples are marihuana, LSD (lysergic acid diethylamide), and mescaline (peyote).	
Substances which tend to alter sensory perception and produce illusions are called hallucinogens.	Ask pupils to suggest reasons why some of these drugs may be purchased legally by prescription only and why some have been outlawed. Point out that Federal Bureau of Narcotics and Food and Drug Administration regulations, as well as state laws, place certain drugs in the prescription category as unsafe for use except under medical supervision because they produce profound physiological effects, or because their method of use requires collateral supervisory measures. Such substances should be used only as prescribed by a qualified medical doctor or dentist. Self-medication and experimentation with drugs can lead to habituation or addiction, brain damage, prolonged unconsciousness, or even death. Since these drugs affect sensory perception, they can cause persons to be involved in serious accidents.	
Dependence or habituation may arise from repeated use of any drug or substance on a continuous or periodic basis.	Develop a bulletin board display of articles about current events to help illustrate the nature and extent of problems resulting from the misuse of potentially harmful substances. Ask pupils to collect articles from newspapers and magazines concerning the drug problem. Discuss the difference between addicting and habit-forming substances. Emphasize that any <u>drug</u> taken regularly can be habit-forming in the sense that the user becomes psychologically dependent upon the drug and feels that he cannot get along without it. A substance is habit-forming or addicting, depending upon whether the user develops a tendency to increase the dose and whether he can stop taking the drug without experiencing withdrawal symptoms.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. How do depressant, stimulant, and hallucinogenic substances affect behavior? (cont.) Addicting substances produce tolerance (the tendency to desire increases in the dosage) and withdrawal illness when their use is discontinued.	Emphasize that addiction is a condition acquired by a person who, through repeated use of a certain depressant or stimulant drug, has developed an uncontrollable physiological and psychological craving for it. The dose, therefore, must be increased to achieve the desired effect. When the drug is withheld, severe physical and mental withdrawal illness occurs. These symptoms may include profuse perspiration, sleeplessness, vomiting, diarrhea, and severe cramps in the legs, back, and abdomen, loss of weight, fever, loss of appetite, and muscle spasms. List examples of substances which are known to be addicting, such as opium and its derivatives, morphine, codeine, and heroin; the barbiturates, "sleeping pills;" cocaine, amphetamine "pep pills;" and, to a lesser extent, glue-containing solvents. Ask for examples of substances which may be habit-forming, such as headache remedies, laxatives, and caffeine. Alcohol and tobacco are examples of substances which may be either addicting or habit-forming, depending on whether a person can stop using them without experiencing withdrawal symptoms.	
B. Why do people misuse drugs and other harmful substances which tend to alter attitudes and behavior? The urge to experiment with drugs arises from a variety of reasons.	Ask pupils to suggest reasons why some people experiment with or misuse dangerous drugs. Indicate that these drugs are essentially "reality modifiers." They create a false sense of well-being, either by dulling or distorting sensory perception, and provide a temporary means of escape from personal difficulties, either real or imagined. Report that --Many young people who misuse drugs are led by a "friend" to drug experimentation and eventually to drug addiction. (More than 90 per cent of the addicts testifying before a legislative subcommittee reported that they began using drugs because of the suggestions of "friends" or "associates.")	Landis, James B., M.D. Drug Abuse. Philadelphia: Smith, Kline, & French Laboratories, 1965. 55 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. Why do people misuse drugs and other harmful substances which tend to alter attitudes and behavior? (cont.)	--Some try drugs as a means of escape, or to seek "thrills," or to "try anything once."	
	--The drug abuse problem is not confined to any specific economic or subcultural segment of the population. The problem occurs among the affluent as well as the underprivileged. Some of the reasons cited for the drug abuse problem among young people include the following:	
	Emotional instability in maintaining satisfactory personal-social adjustments.	Williams, Richard L., et al. The Drug Takers. New York: Time, Inc., 1965. 126 pp.
	Attitudes of indifference toward antisocial behavior and the dangers of drug abuse.	
	Sense of hopelessness and disillusionment toward the accomplishment of worthwhile goals.	Landis, James B., M.D. Drug Abuse. Philadelphia: Smith, Kline, & French Laboratories, 1965. p. 14.
	Feelings of inadequacy toward self and others.	
	Association with persons who misuse drugs.	
	Boredom and the lack of definite goals.	
	Curiosity to try the "unusual," the "exciting," the "daring," and the "dangerous."	
	Inability to tolerage frustrations associated with the responsibilities of "everyday" living.	
	Summarize with pupils the risks involved in experimentation with drugs. These include:	
	--Addiction or habituation. All drugs may be habit-forming, and some are addicting.	
	--Malnutrition. The neglect of food in preference to drugs causes the drug user to become poorly nourished.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. Why do people misuse drugs and other harmful substances which tend to alter behavior? (cont.)	--Infection. Drugs contaminated by unsanitary handling, puncturing of the skin under unhygienic circumstances, and the use of an unsterilized needle make the addict highly susceptible to infections. Ulceration and abscesses of the skin and hepatitis are conditions which may be common among addicts. --Cardiac and respiratory changes or failure. Drugs may stimulate (speed up) or depress (lower) vital physiological processes. Overdoses can result in death. Air injected into the veins by means of a faulty needle and syringe unit may result in an air embolism (bubble), which may cause the heart to stop beating. --Sensory distortion. Drugs disrupt normal sensory perception, dull and distort judgment, and remove normal inhibition. --Criminal involvement. Experimentation with dangerous drugs often leads to a life of crime. Unprescribed drugs may be obtained only through illegitimate sources. The cost is so prohibitive that the addict must resort to crime to support his habit. --Unlikely recovery. Follow-up studies show that less than 15 per cent of drug addicts are cured. Describe the personality of the individual who is addicted to drugs. Stress that the character of the "user" becomes weak, inadequate, and dependent. He cannot cope with the "reality" of his life situation. He has frequent encounters with the law because of illegal possession of addicting drugs and because he must often turn to crime to support his "expensive" habit. Some of the characteristics exhibited by drug users follow: --Watery eyes --Marked restlessness --Excessive need for money (stealing, borrowing, pawning)	Science Research Associate Series. Facts About Narcotics and Other Dangerous Drugs. pp. 35-41.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. Why do people misuse drugs and other harmful substances which tend to alter behavior? (cont.)	--Cranky, uncommunicative --Loss of effective moral sense --State of intoxication --Abscesses on skin from pricking with needles or other objects which are not sterile --Arms constantly covered to hide injection scars --Use of colored glasses to conceal eyes and dilated pupils	
C. What are the most commonly abused drugs?	Clarify the terms "narcotics" and "dangerous drugs." Emphasize that these drug categories include stimulant and hallucinogenic as well as depressant type substances. Drugs which are specifically named in the federal narcotics and marihuana laws are classified legally as narcotics. Matters relating to these drugs are under the jurisdiction of the Bureau of Narcotics, which is a branch of the U. S. Treasury Department. Drugs not covered by federal and state narcotic laws but specifically cited as "unsafe for self-medication" by the Food and Drug Administration are termed "dangerous drugs." Narcotic and dangerous drugs used for medical purposes may be dispensed legally only through prescription by a licensed medical doctor. Instruct pupils to develop a glossary of terms which include the following: Addiction Anxiety Delirium Dependence Depress Euphoria Habituation Hallucination Hypnotic Intoxication Narcotize Nonnarcotic Nonprescription Prescription Sedative Sensory Perception Stupor Stimulate Tolerance Tranquilizer Withdrawal Illness Note that California law-enforcement agencies report the greatest number of drug violations among teenagers involve	Science Research Associate Series. Facts About Narcotics and Other Dangerous Drugs. pp. 12-27.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	marihuana and the dangerous drugs (amphetamines, barbiturates, and LSD). Describe briefly the major narcotic and dangerous drugs. Name the source of each drug, identify its significance in medicine, and point out its effects from misuse.	State of California, Department of Justice. Drug Arrests in California. Sacramento: Bureau of Criminal Statistics, 83 pp., 1967.
Marihuana is a hallucinogenic drug which produces a state of intoxication.	Point out that marihuana is a hallucinogenic drug which comes from the resins contained in the leaves and flowers of the hemp plant, Cannibus sativa. --Cannibus sativa, or Indian hemp, can grow almost anywhere. It has been found growing both wild and under cultivation in many parts of the world, including the United States. It grows rapidly in any temperate zone and reaches from 3 to 18 feet in height. --The use of marihuana dates back at least 4,000 years. The word "assassin"is derived from "hashish," the Arabian name for marihuana. The hemp plant was introduced into the New World by the Spaniards as a source of fiber for the manufacture of rope. With the cultivation of this plant came the practice of smoking the dried leaves and tops. This practice spread north from Mexico to the United States. Since 1900, the use of marihuana has become a significant problem in this country. This narcotic also is used extensively in the countries of Middle Asia, the Eastern and Southern Mediterranean, and North Africa, especially Egypt. In these areas, the common practice is to extract the gum, or resin, from the leaves and flowers, and to take it orally as a liquid or solid. Cite several commercial uses of the hemp plant. (Stalks and stems are used in the manufacture of rope, hats, hemp, cloth, and twine; in paint, soaps, and linoleum; and as fertilizers.) Compare the appearance of the marihuana cigarette with that of an ordinary one.	State of California, Department of Justice. The Narcotic Problem: A Brief Study. Sacramento: Bureau of Narcotic Enforcement. 53 pp. (No publication date given.)

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	The marihuana cigarette is rolled from the dried, greenish-gray leaves of the hemp plant. This type of cigarette appears to be smaller and usually is hand rolled in a somewhat coarser, darker paper than is the ordinary cigarette. Both ends of the marihuana cigarette usually are rolled tightly. However, imported varieties have been known to be "tailor-made." The smell of burning marihuana has a characteristic somewhat acrid odor, similar to that of burning weeds.	
	Ask a pupil to report on the Marihuana Act of 1937, which prohibits the importation, possession, production, and use of this drug.	World Book Encyclopedia.
	Emphasize that marihuana is not used for medical purposes in the United States because its reactions are unpredictable. The drug is nonaddictive; however, medical authorities warn of the development of "subtle drug dependence" or "psychological habituation." Among the unpredictable reactions to the drug are the following: --Distortion in perception of time, space, and distance. (A person traveling at an extremely high rate of speed may think that he is traveling very slowly.) Objects which are close to the user may appear to be so greatly distorted that he may be afraid to step off a curb into the street. --Loss of inhibitions, resulting in a tendency to perform antisocial acts which ordinarily the user never would consider. --Intoxication, which is much like that produced from overindulgence in alcohol. --Emotional dependence on the drug, which often leads to the use of other narcotic drugs.	Williams, Richard L., et al. The Drug Takers. New York: Time, Inc., 1965. 128 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	--Hallucinations and unusual sensitivity to sights and sounds. --Initial feeling of stimulation. --Eyes usually bloodshot, with pupils dilated. --Breath that has an acrid odor like that of burning leaves. --Loss of interest and motivation in the achievement of constructive goals. Analyze with pupils the proposed arguments for the legalization of marihuana within the structural framework of the "critical thinking approach." What is the point of view of medical authorities concerning the legalization of this drug? What are the professional qualifications of those experts who advocate its legalization? Discuss answers to the question, "How does marihuana reach the hands of the teenager?" Point out that California narcotic laws prohibit the cultivation of marihuana. Most of the marihuana which is confiscated by narcotics agents comes from Mexico. Small amounts have been discovered growing in gardens, flower boxes, and vacant lots. However, cultivation of marihuana on a large scale has never been detected in California. Assign pupils to make a chart summarizing the effects of marihuana on the human body.	
The barbiturates are depressant drugs which produce sedative effects and induce sleep.	Indicate that the barbiturates are depressant drugs which produce sedative effects and induce sleep. They are known as "sleeping pills" to the layman and by a variety of slang names to the addict, depending upon the color of the capsule which contains the drug ("red devils," "blue angels," "yellow jackets," and the like). The 21 barbiturate drugs which are commonly used in the United States are prepared from barbituric acid, a	State of California Interdepartmental Committee on Narcotics. California Faces the Drug Abuse Problem. Sacramento: California State Printing Office, 1963. 32 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	synthetically prepared white crystalline powder. Their names usually end in "al," indicating a relationship to barbital, the first drug of this type to be manufactured. The barbiturate drugs are produced in solution, tablet, and liquid form. However, they usually are sold in 1 to 1½ grain capsules, such as --Amytal, or Amobarbital sodium (blue capsule). This preparation also is referred to as "blues," "blue birds," "blue devils," and "blue heavens." --Butisol sodium, or Butabarbital sodium (white or pink tablet). --Nembutal, or pentobarbital sodium (yellow capsule). This preparation also is referred to as "yellows," "yellow jackets," "nimby," and "nimbie." --Phenobarbital (tablets of distinctive shapes and colors). This preparation is also referred to as "phenos." --Seconal, or Secobarbital sodium (red capsule). This preparation also is referred to as "reds," "pinks," "red birds," and "red devils." --Tuinal, or Amobarbital sodium, and Secobarbital sodium (red and blue capsule). This preparation also is referred to as "rainbows," "red and blues," and "double trouble." Point out the medical values of the barbiturates. Variations in speed of action, duration, and effectiveness of the various barbiturates make available to the physician and dentist a wide variety of sedative and hypnotic compounds for different degrees of dosage. They are prescribed to --Alleviate physical and mental distress. --Induce sleep. --Cause partial or even complete anesthesia.	Williams, Richard L., et al. The Drug Takers. New York: Time, Inc., 1965. p. 108.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	Cite the effects of the barbiturates. Use charts to point out the parts of the nervous system which they affect. In general, the barbiturates --Produce sleep and, in large doses, anesthesia. --Reduce conscious activity of the brain. --Depress the cortical region of the brain, which is concerned with vision, audition, and other perceptive functions. --Impair the processes of thought and memory. --Disturb the fine coordination of motor movements. --Produce a brain wave pattern similar to that of sleep. --Produce addiction through repeated and uncontrolled use. Report that there has been an increasing rate of consumption of barbiturates in the United States. Some authorities estimate that at least 1 million persons in this country take sleeping pills and believe that 10 to 25 per cent are addicted to barbiturates. Another authority has stated that more than 300 tons of barbiturates are consumed annually. Cite several harmful effects from the repeated misuse of barbiturates, such as the following: --Uncontrolled use may cause a state of acute or chronic intoxication. Symptoms include: Difficulty in thinking Inability to perform simple calculations Defective judgment Increased emotional instability Inability to coordinate Unsteadiness of walk Slurring of speech --Continued misuse causes mental and physical deterioration. Prolonged use of barbiturate drugs has a cumulative toxic effect on the central nervous	Proceedings--White House Conference on Narcotics and Drug Abuse, September 27-28, 1962. Washington, D. C.: (U.S. Government Printing Office). 331 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs?	system and presents a greater threat to life than the opiates. In large overdoses, barbiturates may cause death.	
	--Repeated misuse produces tolerance for the drug.	
	--Discontinuance of the drug produces symptoms of withdrawal which are considered to be more dangerous than those of the opiates. They include: Nervousness and apprehension Sleeplessness Cramps High fever Increased respiration and heart rate Dehydration of body tissues. (Weight loss of 10 pounds in 36 hours is not uncommon.) Nausea and vomiting Convulsions Characteristic symptoms of severe mental illness Disruption of body processes to the point that the subject is always in danger of death	State of California Interdepartmental Committee on Narcotics. California Faces the Drug Abuse Problem. Sacramento: California State Printing Office, 1963. 32 pp.
	Ask pupils to report on the regulations governing the dispensation of barbiturates, or "sleeping pills."	
	Ask pupils to suggest several reasons why the use of barbiturates is a significant factor in the cause of automobile accidents which do not involve other vehicles and why the barbiturates are responsible for approximately three-fourths of all deaths (accidental or suicidal) from drugs.	
The amphetamines are a group of synthetic drugs which stimulate the nervous system and cause sleeplessness.	Indicate that the amphetamines are a group of synthetic drugs which tend to --Excite and antagonize the actions of the central nervous system. --Cause sleeplessness.	Williams, Richard L. et al. The Drug Takers. New York: Time, Inc., 1965. p. 109.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	--Stimulate the physiological processes and, in some cases, cause a temporary rise in blood pressure and respiration rate. --Produce a state of hyper-excitability that may or may not progress to convulsions. List some of the typical amphetamines, and cite some of their medical uses. The amphetamine drugs are produced in capsule form and in tablets of various shapes and colors. Sometimes they are prepared in combination with a barbiturate to attain certain medical objectives. Generally, the stimulant drugs are taken by mouth in the form of a pill. However, they also may be taken in liquid form or by injection. Some of the amphetamine compounds are: --Amphetamine --Methamphetamine --Benzedrine, or amphetamine sulfate --Biphetamine, or Dextroamphetamine sulfate with Amphetamine sulfate --Dexamyl and Dexamobarb, or Dextroamphetamine sulfate with Amobarbital These drugs also are known as "pep pills," "bennies," (Amphetamine and Benzedrine), "speed or crystal" (Methedrine or Desoxyn), and "dexies" (Dexamyl). They create an energizing action somewhat similar to that of epinephrine (adrenaline) and have several useful functions, including to --Decrease nasal congestion. Inhaled, benzedrine constricts blood vessels and shrinks the nasal mucosa. Benzedrex inhalers are now being substituted for the more powerful benzedrine. --Reduce appetite. --Counteract feelings of mental depression --Treat mental disorders.	"Dependence on Amphetamines and Other Stimulant Drugs," Journal of the American Medical Association (Sept. 19, 1966), pp. 1023-1027.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	Report several reasons why the indiscriminate use of the amphetamines is especially dangerous. Harmful effects of the amphetamines include: --These drugs are habit-forming in the sense that the person becomes emotionally dependent upon them. Tolerance develops; however, physical dependendence and withdrawal symptoms do not occur, except in relation to amphetamine-barbiturate combinations. --They may cause abnormal heart rates, unpleasant and jittery feelings, serious illness, or even death. --Amphetamines mask fatigue, burn up needed energy, and may lead to hallucinations, violence, and other forms of irresponsible behavior. Emotional and intellectual "breakdown" is not uncommon among heavy drug users. --They cause blurred vision, dilation of the pupils of the eyes, and impaired reaction of the eyes to light. --They speed up the physiological processes, increasing blood pressure, respiration, and pulse rate. --They cause dryness of mouth, halitosis, irritability, restlessness, and insomnia. Report that the fad of injecting methamphetamine ("speed," "meth" or "crystals") intraveneously presents serious health hazards. The "boot-legged" varieties purchased on the "street" usually contain impurities. In addition, there is a chance of becoming infected with hepatitis through the use of a contaminated needle. Because the effects provided by methamphetamine is faster and more pronounced than that of taking other amphetamine type drugs, it is commonly known as "speed."	"Drug Abuse," (California's Health, Vol. 25, 1968). 5.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	Discuss the misuse of amphetamines as a cause of accidents. The hallucinations produced by large doses of amphetamine drugs are responsible for high accident rates among truck drivers who take them to avoid falling asleep during transcontinental trips. Point out that attempts to antagonize the depressant effects of alcohol or the barbiturates by combining them with the amphetamines may cause serious physical and mental disturbances and may result in death from poisoning.	Drugs and Driving. (U. S. Government Printing Office, Washington, D. C., 20402). pp. 1-8.
LSD is a powerful hallucinogenic drug which produces bizarre mental effects, including auditory and visual hallucinations.*	Explain that Lysergic acid diethylamide, commonly known as LSD or LSD 25, is derived from ergot, a black fungus which sometimes develops in place of the seed in rye grain. It is colorless, odorless, and tasteless and may be prepared in the form of a liquid, crystalline powder, capsule, or a tablet. Dr. Albert Hofmann, a Swiss biochemist, synthesized LSD in 1938 but did not discover its potency until 1943 when he was re-evaluating the drug. A description of his personal experiences appears in LSD, which is listed in the resource column. Dr. Hofmann did not realize that, by accident, he had discovered the most powerful and controversial hallucinogen known to medical science. This drug is 1,000 times more powerful than marihuana. Point out that, like marihuana, the effects of LSD are unpredictable. The drug affects different persons in different ways. Competent medical authorities report findings of prolonged LSD-induced psychoses and indications of possible brain damage resulting from the use of the drug. There is no way of predicting how any individual will respond to LSD. The psychological reactions may not wear off after the 12 to 16 hours that the drug's effects persist. The reactions may recur months after even	LSD: Teacher Resource Material for Health Education Classes in Senior High Schools: Division of Instructional Services, Instructional Bulletin No. SC-40, 1966. 15 pp.

*The information covering LSD which appears in this unit and in Instructional Bulletin No. SC-40 has been reprinted with permission of Sheriff Peter J. Pitchess from the publication LSD, prepared by the Los Angeles County Sheriff's Department.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

C. What are the most commonly abused drugs? (cont.)

a single exposure to the drug. Among the effects produced by this drug are the following:

--Hallucinations, both auditory and visual.

--Distortion of time and depth perception. Music may seem to have "scent" and sounds to have "color." To some users, colors appear swirled, and fixed objects seem to move. To others, faces appear to change shape, flowers to open and close, and ceilings to sway.

--Disorganization of the mind; the notion that the self is split into two or more entities. An authority reports that one user tried to jump off a bridge since he believed his mind and body to be separate and that, even if his body should die, his mind would "live on."

--Loss of identity and control, which may result in an overwhelming, psychotic reaction. Thought becomes chaotic, and the emotional state is one of fearfulness and distrust. Serious side effects include suicide and attempted suicide. LSD has been used under experimental conditions to reproduce symptoms of insanity so that they could be studied and analyzed.

--Possible damage to chromosomes in germ cells (sperm or ova).

--Symptoms which may indicate that an individual is under the influence of LSD include the following:

Dilation of pupils
Muscular tension
Increase in pulse rate
(can be either quickened or weakened)
Deep respiration
Lack of orientation
Inability to concentrate
Visual disturbances

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	--Psychological dependence and tolerance develop through repeated use of the drug. Analyze with pupils California laws regulating the use of LSD which are cited in the Health and Safety Code. Applicable sections of the Code are: Section 11910 - Possession of Dangerous Drugs (Misdemeanor) Section 11911 - Possession of Dangerous Drugs for Sale (Felony) Section 11912 - Sale of Dangerous Drugs (Felony) Section 11913 - Furnishing Dangerous Drugs to Minors (Felony) Section 11916 - Qualified experts engaged in research relating to LSD are exempted from these provisions	
The sniffing of toxic chemicals contained in glue and other volatile substances can produce serious mental confusion and cause damage to vital body organs.	Evaluate the dangers of ingesting toxic chemicals contained in glue and other volatile substances, such as gasoline, lighter fluid, paint thinner, and cleaning fluid. Ask pupils to explain why this practice should be discouraged and not be considered "just another craze" that will soon vanish. Point out that the glue which is used in making plastic models contains a number of chemicals called solvents. These substances are mixed into the adhesive to make the glue dry more rapidly. The inhalation of the vapors of these chemicals can cause sensations resembling acute intoxication and is followed by drowsiness, stupor, and unconsciousness. Some of the effects reported by persons who have engaged in this dangerous practice are: --Dizziness --Severe headaches of short duration --A buzzing sensation in the head --A feeling of drunkenness similar to that of alcohol intoxication	"Glue-Sniffing: An Adolescent Craze That Is Not Amusing." Consumer Reports (January, 1963), 40. "Toluene Habituation." The New England Journal of Medicine, March 28, 1963, 719-720. Williams, Richard L. et al. The Drug Takers, New York: Time, Inc., 1965. p. 112.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	--Euphoria and a "king of the mountain" feeling --Occasional double vision --Poor concentration --Dullness and periods of sleep --Sneezing, coughing, and chest pain Some users will experience pains in the legs or neck. Severe cases suffer tremors almost identical to those of acute alcoholism. Report that among the volatile substances which are used in the manufacture of glues and cements are hexane, benzene, toluene, xylene, carbon tetrachloride, chloroform, ethylene dichloride, ethyl and isopropyl alcohols, and various ketones, esters, and ethers. Inhalation or accidental ingestion of high concentrations of one or another of these solvents may produce: --Irritation of the mucous membrane, skin, and respiratory tract. --Stimulation and depression of the central nervous system. --Injury to the heart, liver, and kidneys. --Reduction of bone marrow function, leading to a number of blood abnormalities. --Paralysis caused by nerve damage. Cite several symptoms of glue sniffing, such as the following: --Unpleasant breath odor. --Acute intoxication, characterized by complaints of fatigue and confusion. --Nausea and vomiting. --Disturbances of equilibrium and coordination. --Loss of consciousness. Ask class members to develop a plan of action to help eliminate this dangerous "fad." Schedule a debate on	"Pathological Findings by Dr. Jacob Sokol of Glue Sniffers." Unpublished paper prepared by the Juvenile Narcotic Unit, Los Angeles City Police Department, July 25, 1962. 2 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.) The dangerous practice of inhaling aerosol products can produce serious damage to the respiratory system and may result in death.	the question, "Should the manufacture of model airplane glue be outlawed?" Evaluate the dangerous practice of attempting to induce intoxication by the deliberate inhalation of concentrated vapors from aerosol products. This fad began with the sniffing of aerosols designed to chill cocktail glasses but has spread to the misuse of other chemical sprays, including products to coat kitchen utensils, household cleansers, and hair lacquers. The compound fluorocarbon 12 (tradenames include Freon), which is used as the propellant in most aerosol sprays, orginally was developed as a replacement for refrigerant substances which were flammable and more toxic. Use charts and models to trace some of the effects which may result from this dangerous practice. They include: --Dizziness and severe headaches of short duration --Feeling of drunkenness similar to that of alcohol intoxication --Inability to concentrate --Double vision --Dullness, lapsing into brief periods of unconsciousness or sleep --Sneezing, coughing, and chest pain -- Irritation of the respiratory tract --Death by asphyxiation, cardiac arrest, and/or lung damage (The cause of death in most cases is difficult to ascertain. Death may result from asphyxia because the lungs are filled with concentrated vapors of toxic solvents or propellants which contain little or no oxygen, or because the respiratory system has been impaired. In the latter cases, lung tissues literally have been "frozen.") Assign pupils to identify various aerosol products and to develop a list of procedures regarding their safe use.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	Point out that the wide variety of aerosol products are safe for use as directed. However, under certain conditions these substances may have explosive qualities particularly when the container is punctured.	
Aspirin is a depressant drug which in large doses may cause death, especially in small children.	Cite the medicinal uses for aspirin and of similar analgesic agents which contain acetylsalicylic acid. Point out that over 15 billion aspirin tablets (27.2 million pounds) are consumed each year by Americans. List some of the precautions which should be exercised in the use of these drugs. Point out the number of cases of "aspirin" poisoning among small children. The ingestion of large doses of this drug may cause: --Severe irritation of the gastro-intestinal tr... characterized by vomiting, nausea, diarrhea, a... sometimes by gastric hemorrhages. --Profuse perspiration. --Severe Thirst. --Dehydration. --Delirium, hallucinations, convulsions, and coma (severe cases). --Dilation of the pupils. --Decrease in blood pressure. --Increase in respiration (fast and deep). Death may result from respiratory paralysis or circulatory failure. --Allergic reaction to persons who are sensitive to the drug.	"Aspirin," Scientific American, 2-9 (November 1963), 96-101.
Substances which contain caffeine tend to stimulate the nervous system.	List several substances which contain caffeine (coffee, tea, and cola beverages). Cite some of the effects of caffeine on the human body: --Increase in pulse rate and blood pressure --Insomnia, when large doses are used.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	--Irritability, dizziness, headache, diarrhea and constipation, and slight changes in body temperature may be produced by large doses. Point out that beverages which contain caffeine may lack nutritional value and may be habit-forming. Request class members to prepare a chart summarizing the nutritive values of coffee, tea, and cola beverages. Compare these values with those of milk and orange juice.	
The opiates and their synthetic derivatives are depressant drugs which produce addiction and tolerance.	Indicate that the powerful narcotic drug, opium, is the dried, milk-like juice extracted from the unripe pods of a particular species of the poppy plant, Papaver somniferum. This plant is cultivated mainly in the countries of the Middle East and Asia (Turkey, Iran, India, Yugoslavia, and China). Ask a pupil to report where this plant is grown and what regulations govern its importation into the United States. List products which are derived from opium and opium products which are made synthetically. Among these are morphine, codeine, heroin, dilaudid, metopon, pantopon, paregoric, laudanum, and the synthetic substitutes demerol and methadone. General effects of these drugs include: --Reduction of pain and feeling. --Production of euphoria. --Constriction of the pupils of the eyes. --Slowing of the pulse rate. --Decrease in blood pressure (in nonaddict only; disappears with tolerance). --Depression of metabolism. --Development of addiction through repeated and uncontrolled use. --Development of withdrawal symptoms when the drug is withheld.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.) Morphine is a depressant drug which is used in medicine to allay severe pain.	Ask a pupil to report on the history of the use of opiate drugs. Assign a pupil to report on the work of Friedrich Wilhelm Serturner, who extracted morphine from opium. Report some of the medical uses of morphine. This drug is a white, odorless, powderlike substance which may be administered by hypodermic injection, or in the form of powders, pills, or capsules. Among the prescribed medical uses of morphine are to: --Allay severe pain after serious or extensive surgery. --Lessen pain in some incurable diseases. Cite several reasons why the use of morphine is carefully controlled by physicians. --Morphine is 10 times stronger than opium. Hence, it is more highly addicting. --As tolerance develops, dosage must be increased. --The drug has no local anesthetic effect. Control over pain is exerted through action on the central nervous system. Hence, the drug must be absorbed into the blood and carried to the central nervous system before the desired effect may be secured. List several harmful effects caused by repeated misuse of morphine, such as the following: --Uncontrolled use in large doses is highly destructive to the tissues and organs of the body. --Gradual physical and mental deterioration occurs. --As tolerance for the drug develops, the size of the dose must be increased to secure the desired effect. Will power and self-control appear to be paralyzed. --When use of the drug is discontinued, severe withdrawal illness occurs. The symptoms include	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	Restless sleep Running of eyes and nose Excessive yawning and sweating Enlarging of pupils of eyes and appearance of goose flesh Cramps in legs, back, and abdomen and painful twitching of muscles Vomiting, diarrhea, loss of appetite, fever, and rapid loss of weight Twitching and jerking of muscles of arms and legs Rapid pulse and respiration --Overdoses may cause prolonged unconsciousness, and toxic doses may cause death. Indicate that codeine, which is about one-sixth as strong as morphine, is another opium derivative that is used for medical purposes. However, its power to induce sleep and to allay pain is much less than that of morphine. Codeine is prescribed in special cases to --Allay mild pain. --Quiet a cough. --Promote sleep. Ask pupils to suggest reasons why codeine is rarely used by the drug addict.	
Heroin is a powerful depressant drug which produces both addiction and tolerance	Point out that heroin is the most powerful of all the opiates. This drug is manufactured from morphine and is approximately three times its strength. Heroin was developed originally as a cure for morphine addiction. However, it was soon discovered that the addicting property of heroin was much greater than that of morphine. Authorities estimate that, through repeated use of heroin, a person will develop complete addiction within a relatively brief period. For this reason, the manufacture of heroin	State of California Department of Justice. The Narcotic Problem: A Brief Study. Bureau of Narcotic Enforcement. 53 pp. (No publication date given.)

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

C. What are the most commonly abused drugs? (cont.)

has been outlawed in the United States since 1924, and its medical use has been prohibited since 1956. Possession of heroin is unlawful.

Indicate some of the harmful effects of heroin. The drug is a white, powdery substance which is usually purchased in capsule form. Most heroin has been cut with substances, such as milk sugar, to the extent that each capsule usually contains from 2 to 5 per cent heroin. The physiological effects produced by heroin are similar to those of morphine. At first the drug usually is sniffed in powdered form, or prepared as a liquid and injected just under the skin ("skin-poppin"). As tolerance develops, however, the user becomes more addicted to the drug. When this condition develops, he must inject it directly into the vein ("main lining") to obtain more rapid and pronounced effect. Repeated misuse of heroin produces such effects as the following:

--Marked deterioration of personality and character occurs. A physiological and psychological craving for the drug develops, and the total energy of the individual is directed toward one objective - support for the addiction. Personal cleanliness, self-respect, and moral standards are abandoned. The addict readily turns to crime in order to obtain enough money for the purchase of the expensive drug.

--Deterioration of physical and mental health results. Among the symptoms are:

Malnutrition.
Constipation.
Loss of appetite.
Restlessness.
Nervousness.
Hallucinations.
Suseptibility to infections.
Presence of punctures and sores on the arms from hypodermic needles.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. What are the most commonly abused drugs? (cont.)	--The user has severe withdrawal illness, resulting from dehydration of body tissues when he does not take the drug. The effects are similar to those experienced with morphine. --The life span of the heroin addict is shortened at least 20 to 25 years. The sharp decline in the number of drug addicts over 35 years of age helps to substantiate the inference that there is a high death rate among young drug addicts.	
D. How can the drug abuse problem be controlled? The individual as well as the community must share in the development of effective measures for the prevention of drug abuse.	Ask pupils to suggest reasons for the increase of drug abuse among teenagers as well as adults. Why is "drug faddism" dangerous? The California Medical Association points out that: Every drug carries with it the threat of overuse and potential harm. Widely favored today by many drug faddists are the tranquilizers and the cortisone drugs. Both are indeed extremely useful when appropriately used in the treatment of specific disorders. But, like all powerful drugs, they cannot be used indiscriminately, nor can the patient himself make the determination as to whether the drug is indicated for him - no matter how much status seems to be associated with the drug at the moment. It has been estimated that about 10 to 15 per cent of the population uses no drugs and that approximately the same proportion will use any available drug. It is in this latter category that we find the drug faddist - those who are eager to experiment with new cures and who will swear by whatever medication is currently receiving widespread publicity. A smaller proportion of the total population - 4 per cent - are potential addicts who	Winick, Charles. The Narcotic Addiction Problem. New York: American Social Hygiene Association, 1962. 22 pp. Science Research Associates Guidance Series. Facts About Narcotics and Other Dangerous Drugs. pp. 54-56.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How can the drug abuse problem be controlled? (cont.)	often switch from one addicting drug to another. The best way to make the best use of the triumphs of medical research and yet to avoid drug faddism is to let your doctor make the decision about what medication you need.[1]	
	Present statistics to illustrate the annual cost of drug abuse to the individual and the community. Authorities estimate that the addict needs about $10 to $30 a day, or about $10,000 a year, to support his habit. The addict is forced to a life of crime to obtain such funds. He must steal at least $50,000 worth of merchandise annually to obtain $10,000.	U. S. Treasury Department, Bureau of Narcotics. Prevention and Control of Narcotic Addiction. (U.S. Government Printing Office, Washington, D.C., 20402). 330 pp.
	Arrange a panel discussion on the "Effects of Drug Addiction on the Community." Assign the pupils to analyze the costs to the community resulting from the drug abuse problem such as those for law enforcement, the maintenance and supervised parole of drug violators, and treatment and rehabilitation programs. Drugs also contribute to the accident rate.	
	Ask pupils to cite factors which contribute to the drug abuse problem in Southern California. What is the source of illegal drugs? How are they obtained by teenagers?	
	Ask a class member to report on what happens to a boy or girl who is arrested for the illegal possession and/or use of a narcotic or dangerous drug.	
	Identify some of the problems which face an individual who has become addicted to drugs. Emphasize that many addicts are school dropouts. They have little or no vocational skills. Addiction renders them incapable of working efficiently at any job. When rehabilitated the addict is often not accepted by former friends and associates. He finds a scarcity of job opportunities.	

[1] California Medical Association, Health Tips, 240 (February, 1967), 1.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. How can the drug abuse problem be controlled? (cont.)	Assign pupils to write a paragraph on "Why Narcotics Education Is a Required Part of the School Curriculum." Discuss the purposes of California laws relating to narcotics and dangerous drugs. Divide class members into committees, and ask them to identify responsibilities of junior high school pupils in preventing the spread of drug habituation and addiction. Discuss some of the problems which they encounter in relation to the drug abuse problem, and ask class members to suggestion solutions. What should a person do if he is offered a suspicious substance or cigarette? Ask for reports on local, state, and federal programs for the rehabilitation of the drug addict. Describe some of the problems involved in the rehabilitation of drug addicts. To what degree have these programs been successful? Assign pupils to report on the highlights of the life story of Bill Stern, the famous sportscaster, and of other famous personalities who became addicted to drugs. Invite the school physician, nurse, or other qualified resource person to discuss the control of drug addiction and treatment of addicts. Appoint a pupil panel to discuss the extent to which California laws pertaining to the abuse of narcotics and other dangerous drugs have been effective in controlling the problem.	

NARCOTICS AND DRUG LAWS OF CALIFORNIA

OFFENSE	CODE SECTION	PENALTY		
		No Prior Narcotic Offense	1 Prior Narcotic Offense	2 or More Narcotic Offenses
GLUE SNIFFING	381 P	6 mos. Jail and/or $500	Same	Same
LOPHOPHORA (Peyote)				
Possession or growing	11540 HS	1 yr. Jail or 1-10 Prison	2-20 yrs. Prison	Same
MARIJUANA				
Possession	11530.1 HS	1 yr. Jail or 1-10 Prison	2-10 yrs. Prison	5-Life Prison
Growing	11530 HS	1-10 yrs. Prison	2-10 yrs. Prison	5-Life Prison
Possession for sale	11530 HS	2-10 yrs. Prison	5-15 yrs. Prison	10-Life Prison
Transporting, importing, selling or furnishing	11531 HS	5-Life Prison	5-Life Prison	10-Life Prison
Selling or furnishing to minor	11532 HS	10-Life Prison	10-Life Prison	15-Life Prison
NARCOTICS (OTHER THAN MARIJUANA)				
To be present where narcotics are being unlawfully smoked or used	11556 HS	6 mos. Jail and/or $500	Same	Same
Possession	11500 HS	2-10 yrs. Prison	5-20 yrs. Prison	15-Life Prison
Possession for sale	11500.5 HS	5-15 yrs. Prison	10-Life Prison	15-Life Prison
Transporting, importing, selling or furnishing	11501 HS	5-Life Prison	10-Life Prison	15-Life Prison
Selling or furnishing to minor	11502 HS	10-Life Prison	10-Life Prison	15-Life Prison
Selling, furnishing, etc. some other substance as a narcotic	11503 HS	1 yr. Jail or 1-10 Prison	Same	Same
RESTRICTED DANGEROUS DRUGS				
Possession, including LSD	11910 HS	1 yr. Jail or 1-10 Prison	2-20 yrs. Prison	Same
Possession, not including LSD	4230 BP	6 mos. Jail and/or $500	Same	Same
Possession for sale	11911 HS	1 yr. Jail or 1-3 yrs. Prison	2-10 yrs. Prison	Same
Transporting, importing, selling or furnishing	11912 HS	1 yr. jail or 1-5 yrs. Prison	2-10 yrs. Prison	Same
Selling or furnishing to minor	11913 HS	1-5 yrs. Prison	2-10 yrs. Prison	Same
	4234 BP	1-5 yrs. Prison	Same	Same

TEACHER REFERENCE ONLY

GLOSSARY OF SLANG TERMS ASSOCIATED WITH DRUG ABUSE

Many slang terms are associated with the drug abuse problem. However, this Glossary is provided for teacher reference only. It is not intended as part of the content of the course, nor should the expressions be taught as such.

BALLOON	Rubber toy balloon used for storing or delivering narcotics, usually capped heroin
BENNIES	Benzedrine
BINDLE	A small paper packet of heroin, morphine, or cocaine
BLACK	Opium
BLAST	To smoke a marihuana cigarette
BLOW	To smoke a marihuana cigarette
BLUE HEAVEN	Amatyl
BREAD	Money
BRICK	Kilo of marihuana in compressed brick form
BURN	To accept money and give no narcotic in return, or to give a substance in lieu of the narcotic
CAN	1 ounce of marihuana. Term derived from tobacco can, in which marihuana was commonly sold in the past. Now, it is more frequently sold in small paper bags
CAP	A capsule of heroin, commonly number 5 capsule
CHIPPY	An occasional user of heroin
CLEAN	Removing stems and seeds from marihuana. Also, an addict who is free from narcotic injection marks, as in "I'm clean, man."
COCKTAIL	A regular cigarette, into one end of which a partially smoked marihuana cigarette is inserted so as to waste none of the drug
COKE	Cocaine
COLD TURKEY	Trying to break the habit. "Kicking it cold turkey" is breaking the habit of drug use at home, in prison, etc., without the aid of any medication or medical care

CONNECT	To buy drugs
CONNECTION	A peddler who knows an addict and will sell him drugs
COTTONS	Bits of cotton saturated with narcotic solution used to strain foreign matter when drawing solution up into hypodermic syringe or eyedropper. These "cottons" are often saved by addicts for an emergency, as they contain a residual amount of the drug
CUT	To adulterate narcotics
CRUTCH	Device used to hold marihuana cigarette when it has burned to the point where it will burn the fingers. Also, a container for a hypodermic needle
DEALER	A drug peddler
DECK	A small packet of morphine, cocaine, or heroin
DEXIES	Dexedrine
DOPE	Any narcotic
DOPER	Addict
FINE STUFF	Narcotics of unusually good quality, only slightly adulterated
FIX	See OUTFIT
FIX, FIX-UP	A drug which is about to be injected, or has just been injected
FLASH	To throw up after "fixing," or the feeling an addict has just after "fixing"
FRANTIC	Nervous, jittery drug user
FUZZ	The law
GEEZE	Injection of narcotic
GOOD H	A good quality of heroin
GOOF BALL	Any barbiturate tablet or capsule, combined with an amphetamine
GOOFER	One who drops pills
GOOFED UP	Under the influence of barbiturates

GRAM	Gram of heroin (approximately 10 capsules)
GRASS	Marihuana in the raw state, such as leaves, stems
GRASSHOPPER	Marihuana user
GUN	See OUTFIT
H.	Heroin
HABIT	Addiction to drugs
HAND-TO-HAND	Delivery of narcotics person-to-person
HEAD	Marihuana user
HEAT	The law
HIGH	Under the effect of narcotics
HOG	An addict who uses all he can get his hands on
HOLDING	Possessing narcotics
HOOKED	Addicted; a confirmed addict
HORNING	Sniffing narcotics through nasal passages
HYPE	An addict
JOINT	A marihuana cigarette. Also State Prison
JOLT	An injection of narcotics
JOY POP	An occasional injection of narcotic. One who is "joy popping" only takes an injection now and then
JUNK	Heroin
KICKING	See COLD TURKEY
KEE	Kilo
KILO	2.2 lbs.
LID	See CAN

LOADED	Under influence of narcotics
MAIN-LINE	Veins of body, usually arms; also intravenous injection
MAIN-LINER	One who injects narcotics directly into the veins, intravenously
MAKE IT	To buy narcotics
MAN (THE)	Law; connection
MANICURE	Prepare marihuana for use in cigarettes
O.D.	Overdose of narcotics, usually heroin
OUTFIT	Equipment for injection by the hypodermic method; a "hype" outfit. Eyedropper and needle, spoon, safety pin, etc.
PANIC	A scarcity of drugs, usually caused by the arrest of a big peddler
PIECE	1 ounce of heroin
PIG	See HOG
PILL HEAD	Amphetamine or barbiturate user
PILL FREAK	See PILL HEAD
PILLY	See PILL HEAD
POP	A subcutaneous injection, usually referred to as "skin poppin'."
POT	Marihuana
PURE (THE)	Pure heroin, prior to adulteration. "This is the pure; you can cut in ten times, at least."
PUSHER	Drug peddler to users. One who seeks more business from regular customers
RAINBOW	Tuinal
RED DEVIL REDBIRD RED OR REDS	Seconal
REEFER	Marihuana cigarette

SCORING	Making a purchase of a narcotic
SHOOTING GALLERY	A place where an injection of narcotics can be used and/or bought
SHORT	Auto
SHOT	An injection of narcotics
SOURCE	Where narcotics are obtained, such as pusher, dealer, supplier, connection
SMACK	Drugs, especially powdered drugs in the form of snuff
SNIFFING (Snorting)	Using narcotics by sniffing through nasal passages, usually heroin or cocaine. This is taking it "rare" - not in solution
SNOW	Cocaine
SNOWBIRD	Cocaine user
SPEEDBALL	A powerful shot of drug, usually heroin and cocaine combined
SPIKE	A hypodermic needle
SPOON	A quantity of heroin, theoretically measured on a teaspoon (usually between 1 and 2 grams)
SQUARE	A person who does not know what's happening
STASH	Place where narcotics or the "outfit" is hidden; also, place where a drug peddler will secrete various quantities of narcotics
STONED	Under the influence of drugs
STRAIGHT	Under the influence of narcotics
STRUNG OUT	Addicted (heavily)
STUFF	Heroin
TEA	Marihuana
TASTE	A small sample of a narcotic
TOKE UP	To light a marihuana cigarette

TRACKS	A series of puncture wounds in the veins, caused by continued narcotic injections
TURN ON	To use narcotics, or to introduce another person to the use of narcotics
USER	One who uses narcotics
WEED	Marihuana
WEED HEAD	Marihuana smoker
YELLOWS YELLOW JACKET	Nembutol

UNIT V. ADDICTING, HABIT-FORMING, AND OTHER HARMFUL SUBSTANCES

Drug	Source	Properties	Methods of Use	Effects
OPIUM	Opium poppy grown in Mexico, Asia, and Balkan countries.	Sticky brown substance. Heavy odor.	Usually smoked in opium pipe. May be eaten.	Deadens feeling, saps energy, causes drowsiness and/or stupor, strongly addictive, produces drug tolerance and withdrawal illness.
MORPHINE	Derivative of opium	White crystals. Sold in form of powder, pill, capsule, or package.	Swallowed, or more often injected under the skin or into vein.	Gives a sense of well being, relieves pain, induces sleep, is quickly addicting. Produces drug tolerance and withdrawal illness
HEROIN	Derivative of morphine.	White powder resembling powdered sugar. Sold in capsules and other forms as is morphine. No legitimate use. Possession and use illegal for anyone.	Sniffed, injected under the skin or into vein.	Gives sense of well-being, produces drug and withdrawal illness, tolerance. Requires two to four weeks to establish addiction which is almost impossible to cure.
Other morphine derivatives include DILAUDID, CODEINE, METOPON, DIHYDROCODEINONE (Percodan)	Similar to morphine	Similar to morphine	Similar to morphine	Produce addiction and withdrawal illness.

Drug	Source	Properties	Methods of Use	Effects
COCAINE	Leaves of coca plant (no relation to cocoa). Native to Peru and Bolivia. Cultivated in Java and Ceylon.	Flaky, snowlike substance resembling epsom salts or camphor. Sold in containers similar to morphine or heroin.	Usually sniffed because mucous membrane is especially responsive to the drug. May be injected.	Kills pain, constricts tissues, dilates pupils of eyes, gives sense of elation, is quickly and strongly habit-forming, produces mental and physical deterioration.
MARIHUANA	Cannabis sativa plant. Readily grows as weed in temperate climates in United States and in many other countries.	Leaves, stems, and flowers dried into grass-like form which is rolled into brown paper cigarettes, folded in at both ends. Strong odor of fresh cut alfalfa hay.	Smoked in cigarettes.	Produces unpredictable actions, varying even from one cigarette to another. Causes loss of sense of time and space. Creates loss of inhibitions, releases latent tendency to commit crimes. Even one cigarette may evoke a criminal act. Marihuana smokers frequently "graduate" into heroin addicts.
BARBITURATES	Manufactured synthetically as salts of barbituric acid. All names of these drugs end in al, such as pentobarbital, seconal, amytal, phenobarbital, barbital.	White powder sold in colored capsules which are given names such as "Barbs," yellow jacks, red devils, etc. Colors indicate kind of drug. When sold in pill form may be called "goof balls."	Swallowed or injected.	Induce sleep and produce symptoms similar to intoxication. Create addiction and withdrawal illness. Users in a groggy state may take fatal overdose. Misuse of barbiturates with "pep-pills" (amphetamines) by addicts may cause serious mental illness or death.

Drug	Source	Properties	Method of Use	Effects
AMPHETAMINES	Chemically made drugs known as amines, amphetamine or Benzedrine, D amphetamine of dexedrine, ephedrine.	Brown or white tablets. Benzedrine, called "bennies" or "pep-up pills" are usually heart shaped.	Swallowed	Reduce desire to sleep, create false sense of pep and mental alertness, are habit-forming, produce tolerance through repeated use. Misuse may cause loss of mental powers, illness, or death.
MESCALINE	Dried tops of the cup-shaped small cactus (Lopophera williamsii) which grows in Mexico along the Rio Grande.	Button-shaped growths closely resembling mushrooms. After plucking, the mescal buttons are dried in the sun.	Chewed and swallowed.	Induces optical and auditory hallucinations, causes nausea and vomiting, produces tolerance through administration.
LSD	Derived from ergot (a black fungus) which sometimes develops in place of seed in rye grains. d-lysergic acid diethylamide tartrate (LSD-25) $C_{20}H_{25}N_3$	Liquid which is colorless, odorless, and tasteless	Swallowed	Produces optical and auditory hallucinations, causes psychological dependence, may produce chromosomal damage as well as chronic brain damage.
AEROSOLS	Manufactured chemical sprays such as products to chill cocktail glasses, hair lacquers, and hoursehold cleansers	Concentrated vapors of toxic solvents or propellants which contain little or no oxygen. Explosive and flammable, especially when the container is punctured.	Sniffed	Induces intoxication and feeling of euphoria, causes psychological dependence, irritates membrane lining of the respiratory tract, may produce death by asphyxiation, cardiac arrest or lung damage

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does the use of alcoholic beverages affect the individual and the community? The kind of alcohol that is used in beverages is made through the process of fermentation.	Clarify the term "alcohol," and indicate that there are several kinds. Emphasize that this term is applied to a group of compounds having similar chemical make-up. The kind of alcohol that is used in alcoholic beverages is called ethyl alcohol, or ethanol. It is a colorless liquid which has a wide variety of uses as an organic solvent in drug, cosmetic, and chemical preparations. --Set up a demonstration to show that iodine crystals dissolve more quickly in alcohol than in water. --Display household items which contain alcohol, such as medicines, disinfectants, and flavor extracts. Ask pupils to list the names of common alcohols and to state their uses. Utilize this list to point out that ethanol is the only alcohol which is considered nontoxic for human consumption, except in lethal doses. Indicate why ethyl alcohol is sometimes referred to as grain alcohol. Explain that almost all ethyl alcohol is made through the process of fermentation. This is a chemical change brought about by the action of yeast microorganisms on carbohydrates at room temperature. Bubbles of carbon dioxide are set free, causing the formation of ethyl alcohol. When the alcoholic content reaches approximately 12 to 14 per cent, the microorganisms become inactive, and fermentation stops. Discuss how man probably discovered the process of fermentation. Ask for a report on the methods used by Louis Pasteur to explain this process scientifically. Compare the alcoholic content of the three most common kinds of alcoholic beverages. Point out that beer contains about 1/10th and wine about 3/10ths as much alcohol as distilled liquor. Twelve ounces of beer contains approximately the same amount of alcohol as 3 ounces of fortified wine, or 1½ ounces of distilled liquor.	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. 308 pp. Science Research Associates Guidance Series. Facts About Alcohol. pp. 2-29. McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. 308 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does the use of alcoholic beverages affect the individual and the community? (cont.)	--Beer is produced from the fermentation of malted grain and has an alcoholic content of approximately 4 per cent. Various names, such as ale, stout, bock, and lager are used to indicate differences in the color and taste. These differences are produced by the kinds of hops that are used to make the beer and by the methods which are employed to induce fermentation. --Wine is produced from the fermentation of plant and fruit juices and may vary in alcoholic content from approximately 10 to as much as 25 per cent. Wines containing alcohol above levels of 12 to 14 per cent have been "fortified" by the use of additional alcohol. --Distilled, or hard, liquors (whiskey, gin, brandy, and rum) have a much higher content of alcohol than either beer or wine. The alcoholic content of the distilled liquors is approximately 40 to 50 per cent, or 80 to 90 proof. (The term "proof" is used to indicate an amount which is equal to twice the per cent of alcohol by volume.) The kinds of grains which are used to make liquors, together with the methods which are employed to bring about fermentation and distillation, account for the differences in types. "Proof" is the accepted term to identify the amount of alcohol by volume in a given beverage. It has been said that, prior to the invention of adequate methods for determining the per cent of alcohol by volume, "spirits" were tested for their alcoholic content by using them to moisten gunpowder and then attempting to ignite the gunpowder. The moist gunpowder would not burn if the spirits contained less than 50 per cent alcohol.	Science Research Associates Guidance Series. Facts About Alcohol. pp. 2-29. Scott, Foresman Series. Book Seven. pp. 162-173.
Beverage alcohol is a depressant substance which slows down the activity of the central nervous system and dulls sensory perception.	Use schematic drawings and charts to trace the absorption of alcohol by the body. --Alcohol requires no digestion. Immediately after the liquid is swallowed, it is absorbed directly into the blood stream through the walls of the stomach (about	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 77-91.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does the use of alcoholic beverages affect the individual and the community? (cont.)	20 per cent) and the small intestine (about 80 per cent). This action occurs very quickly; however, the rate of absorption may be slowed down by several factors, including the presence of food in the stomach.	
	--Alcohol is circulated throughout the body and diffuses into all tissues which contain water. Small amounts are eliminated by way of the lungs, sweat glands, and kidneys. The liver, which is the principal organ manufacturing the enzyme, alcohol dehydrogenase, is responsible for initiating the conversion of alcohol to carbon dioxide and water. Hence, the disappearance rate of alcohol from the blood is dependent upon the functioning of the liver. Black coffee, cold showers, and exercise are of no value in speeding this process.	"Planning for Alcohol Education," (California's Health, Vol. 18, 1962). 10-11. A reprint.
	List the general effects of alcohol on the individual. Why is alcohol called a stimulant by uninformed persons? Emphasize that alcohol acts as a depressant on the central nervous system, affecting the highest levels of the brain, first. Generally, alcohol:	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 90-119.
	--Produces a false sense of well-being, or euphoria.	"Planning for Alcohol Education," (California's Health, Vol. 18, 1962). 10. A reprint.
	--Causes dilation of the peripheral blood vessels; this may result in ruddiness of the face and neck and may produce a sensation of warmth.	Science Research Associates Series. Facts About Alcohol. pp. 30-34.
	--Irritates the mucous membrane lining of the stomach, especially in concentrations of more than 20 per cent.	
	--Distorts judgment.	
	--Weakens inhibitions. (Affects self-control.)	
	--Slows reaction time.	
	--Interferes with physical and mental performance.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does the use of alcoholic beverages affect the individual and the community? (cont.)	--Impairs hearing and causes "tunnel vision," which is a narrowing of the field of vision. --Increases carelessness. --Impairs coordination. --Lessens intellectual activity. --Dulls memory. --Alters liver function. A damaged or diseased liver is frequently the cause of death of chronic alcoholics. --Disrupts normal endocrine activity when consumed in excessive doses, which in turn may affect the protein and carbohydrate metabolism and the mineral balance of the body. --Causes unconsciousness or death when consumed in large or toxic doses. Evaluate the "food" value of alcoholic beverages. Why is alcohol referred to as containing "empty" calories? Compare the nutritive value of an alcoholic beverage with that of a glass of milk. Instruct class members to prepare charts summarizing the effects of various amounts of alcohol on the nervous system. Display pictures of different types of devices used to determine the per cent of alcohol in the blood. Point out that body size is an important factor in determining blood alcohol levels. The smaller the individual, the less alcohol is required to reach a given blood level. Hence, young people usually tolerate far less alcohol than do adults. When the concentration of alcohol in the blood reaches a level of --0.05 to 0.15 per cent (about 2-4 ounces of whiskey or 6-8 bottles of beer), the individual is considered to	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 98-99.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does the use of alcoholic beverages affect the individual and the community? (cont.)	be legally under the influence of intoxicating liquor. --0.3 per cent (about 1 pint of whiskey or 6 quarts of beer), the user becomes unaware of what is happening around him. --0.4 per cent (about 1½ pints of whiskey or 9 quarts of beer), the person becomes completely unconscious. --0.5 per cent or above (about 1 quart of whiskey), the individual's life is endangered because of paralysis of parts of the nervous system which control respiration.	
The misuse of alcoholic beverages presents an economic burden on the individual as well as society.	Discuss the relationship between the use of alcohol and the frequency of accidents. Ask pupils to list several reasons why the use of alcoholic beverages increases the probability of accidents. Instruct them to determine how many accidents are caused each year because of the consumption of alcoholic beverages, either by an automobile driver or a pedestrian. To what extent is the drinking of alcoholic beverages a factor in the cause of airplane accidents? Assign pupils to write a paper in which are listed the reasons why a person should not ride with a driver who has been drinking alcohol. Discuss the nature of alcoholism. Explore the following topics with class members: --Why is alcoholism considered an illness? --Why does alcoholism lower a person's resistance against disease? --What are some of the individual and family problems which result from alcoholism? --What are some current programs for the treatment of alcoholism?	"Planning for Alcohol Education," (California's Health, Vol. 18, 1962). 10. A reprint. Science Research Associates Series. Facts About Alcohol. pp. 48-56. Scott, Foresman Series. Book Seven. pp. 171-173.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. How does the use of alcoholic beverages affect the individual and the community? (cont.)	--In what ways does the problem of alcoholism present an economic burden to the community? Organize a panel to discuss reasons why some young people drink alcoholic beverages. Summarize the discussion by emphasizing that alcohol --Is a depressant drug which may be habit forming and, in some cases, addiction producing. --Produces effects upon personality and behavior which cause the user to do things that he would not do under normal conditions. --Impairs physical coordination and judgment. Even small amounts can have serious consequences, especially under circumstances requiring a high degree of physical and mental competency. Ask for a report on legal restrictions regarding the manufacture and sale of alcoholic beverages. What is the permissible legal age at which a person in California may purchase or possess alcoholic beverages?	"Planning for Alcohol Education," (California's Health, Vol. 18, 1962). 9-13. A reprint

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community? Tobacco smoke contains substances which are harmful to the human body.	Explore pupil attitudes concerning smoking through the techniques of oral and written inquiry, such as --Do you think that smoking is harmful to a person's health? Give at least two reasons for your answer. --Why do so many adults smoke? --Why do some famous individuals, including professional athletes, promote tobacco products in magazine advertisements and television commercials? --What is the viewpoint of the medical profession concerning smoking? --Why are health agencies, such as the American Cancer Society, the Heart Association, and the Tuberculosis and Health Association, concerned about smoking? --What is the significance of the statement regarding the health hazards of smoking which appears on every package of cigarettes? The statement reads as follows: "Caution: Cigarette Smoking May Be Hazardous to Your Health." --In what ways is tobacco smoke comparable to air pollution?	Scott, Foresman Series. Book Seven. pp. 178-179. Science Research Associates Guidance Series. Facts About Smoking and Health pp. 2-5.
	Analyze the contents of a cigarette and of tobacco smoke. Point out that the tobacco in a cigarette contains nicotine, added flavoring, traces of incecticide residues, and certain chemicals to keep the tobacco moist. Cigarette smoke consists of approximately 270 different substances. Some of these are: --Numerous gases (about 60 per cent of total tobacco smoke), several of which are capable of inhibiting the action of the ciliated cells of the trachea and bronchi. These gases include carbon monoxide, carbon	U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington, D. C., 20402), pp. 49-75.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	dioxide, methane, methanol, acetone, ammonia, acrolein, nitrogen dioxide, methyl nitrate, hydrogen sulfide, hydrogen cyanide, and methyl chlorine. --Tobacco tars that contain many substances. Several of these are capable of producing abnormal cellular growths, or cancer, when applied repeatedly on the skin of laboratory animals. --Small quantities of nicotine, a substance which is habit-forming and highly toxic.	Brecher, Ruth, and Others. The Consumers Union Report on Smoking and the Public Interest. Mount Vernon, New York: The Consumers Union, 1963. pp. 13-102.
Tobacco smoke affects the normal functioning of physiological processes.	Indicate that the nicotine in tobacco smoke speeds up certain physiological processes and slows down others. Ask the pupils, "How does nicotine affect circulation, respiration, and digestion?" Some reactions produced by this drug include: --Stimulation and/or depression of the central nervous system. --Change in the rate of respiration to abnormally rapid and/or deep breathing. --Constriction of the peripheral blood vessels, usually associated with a rise in the systolic blood pressure. --Acceleration of the heartbeat and pulse rate. --Supression of the appetite. --Stimulation of peristalsis, and with larger doses, nausea which may be associated with vomiting. --Decrease in the temperature of the skin, especially of the fingers and toes. Cite the effects of nicotine on a person who is not accustomed to smoking, such as dizziness, nausea, and diarrhea. Why do these symptoms disappear as the	U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington, D. C., 20402), pp. 74-75. Science Research Associates Guidance. Facts About Smoking and Health. pp. 19-23.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	individual continues to smoke regularly? (Tolerance develops for small amounts of nicotine.) Ask pupils the question, "Why are athletes advised not to smoke?" Use the results of the following activity to illustrate that smoking places an added load on the circulatory system. Request several pupils to volunteer to perform the following demonstration at home and to report the results to the class: After enlisting the cooperation of a parent or adult who smokes, request the individual to sit quietly for 30 minutes and not to smoke for at least one hour before the experiment. Take his pulse. Allow him to smoke a cigarette, and then take his pulse immediately. Take the pulse again in 15 minutes and then in 30 minutes. Record the pulse rates, and report the findings to the class. Compute the approximate number of extra heart beats induced by smoking to illustrate that tobacco smoke places an extra, unnecessary load on the heart, especially during activities requiring endurance. Point out that the concentration of carbon monoxide and carbon dioxide in cigarette smoke is relatively small, but that the smoker may absorb some carbon monoxide, which reduces temporarily the oxygen-carrying capacity of the blood. Set up a device to collect the tar-like products of tobacco smoke. A simple "smoking machine" may be constructed from a plastic bottle. Cut the spout of the bottle at a point large enough to permit the insertion of a cigarette. Then place a piece of cotton in the spout and insert the cigarette. "Smoke" the cigarette by squeezing the plastic bottle. Allow pupils to examine the amount of tar residues from the	

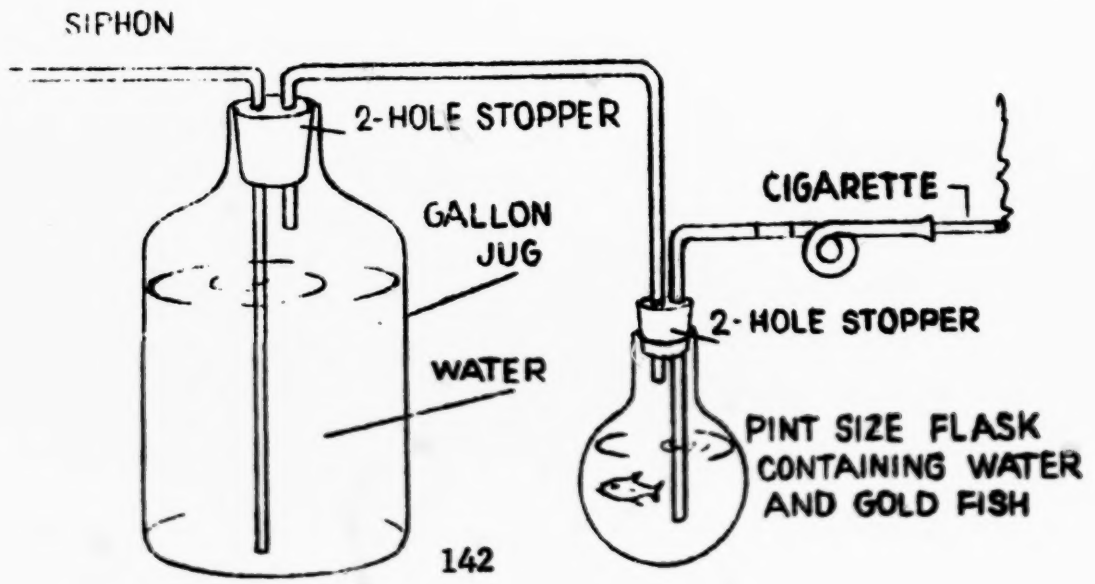
CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

F. How does the use of tobacco affect the individual and the community?

smoke of various brands of filter and non-filter cigarettes.

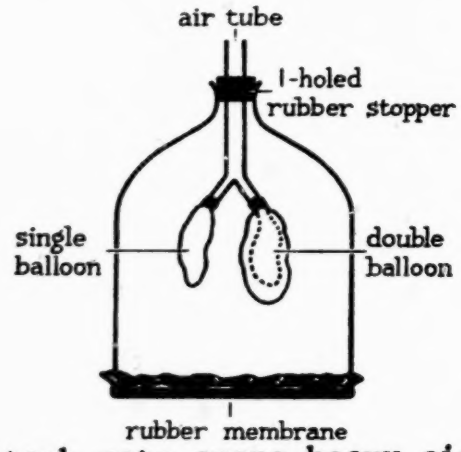
Use charts and models in explaining the areas of human tissue that are exposed to cancer-producing tars through smoking. Point out that the cells which line the air passages contain hair-like projections called cilia. The cilia act in a whip-like fashion to move mucous and foreign materials up the bronchial tubes and out of the lungs. Emphasize that tobacco smoke has been found to interfere with this process and eventually to cause the cilia to disappear. Thus, harmful irritants are allowed to accumulate along the surface of the delicate air passages of the respiratory tract.

Prepare a demonstration to illustrate some of the effects of cigarette smoke. Through the use of the apparatus diagrammed below, a goldfish can be made to absorb cigarette smoke. A vacuum is created by siphoning water from a gallon jug with a two-hole stopper. The first tube is used for the siphon, while the second tube leads from the jug to a pint-sized flask containing the goldfish. The flask also has a two-hole stopper. A coiled glass tube holds the tip of a cigarette and leads into the water of the flask, as illustrated below:



CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	Three cigarettes are usually sufficient to cause the fish to lose its equilibrium. The coil in the glass tubing shows the amount of tar that can be collected from the smoke of even a few cigarettes. Filters apparently have little effect on the amount of cigarette smoke needed to obtain the same results.	
	Instruct class members to list some of the factors that a person should consider before deciding whether to smoke. Explore some of the health conditions that result from smoking over a long period. Display charts and other materials which indicate that smoking is linked with the rapidly rising rate of lung cancer and is associated with a number of respiratory and circulatory disorders. Instruct the pupils to prepare graphs comparing the incidence of lung cancer among smokers and nonsmokers. Report that smoking has such ill effects as the following:	Statistical charts and graphs are available from the American Cancer Society.
	--Cigarette smoking is the most important cause of chronic bronchitis in the United States and increases the risk of dying from chronic bronchitis.	U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington, D. C., 20402), pp. 74-75.
	Explain that chronic bronchitis is a condition of the respiratory tract which is characterized by excessive mucous secretion in the bronchial tree and by a chronic or recurrent productive cough.	
	--A relationship exists between pulmonary emphysema and cigarette smoking. The smoking of cigarettes is associated with an increased risk of dying from pulmonary emphysema.	
	Explain that pulmonary emphysema is a lung disease which usually is associated with alteration and destruction of the tiny, balloon-like air sacs which make up the lungs. This condition results in shortness of breath because of inefficiency of the lung system in exchanging carbon dioxide in the blood for oxygen.	
	Use a bell jar with balloons attached to either arm of a	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	Y-tube to simulate the action of the air sacs of the lungs in breathing. When the rubber membrane (the "diaphragm"), which is stretched across the bottom of the jar, is pulled down and released in rapid succession, the balloons will inflate and deflate as the lungs would do in breathing. Attach a double balloon to one arm of the apparatus to form an air pocket, as shown in the illustration below. The action of this "lung" may be likened to the condition of pulmonary emphysema. If the walls of the air sacs have been altered or destroyed, air pockets form, and the lungs cannot function in a normal manner.	



--The heart attack rate among heavy cigarette smokers is significantly higher than that of nonsmokers. Male cigarette smokers have a higher death rate from coronary disease than nonsmoking males. Persons who have stopped smoking have a lower death rate from heart attacks than do persistent smokers.

--Expectant mothers who smoke tend to have babies of lower birth weight than do nonsmoking mothers.

U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington, D. C., 20402), pp. 320-327.

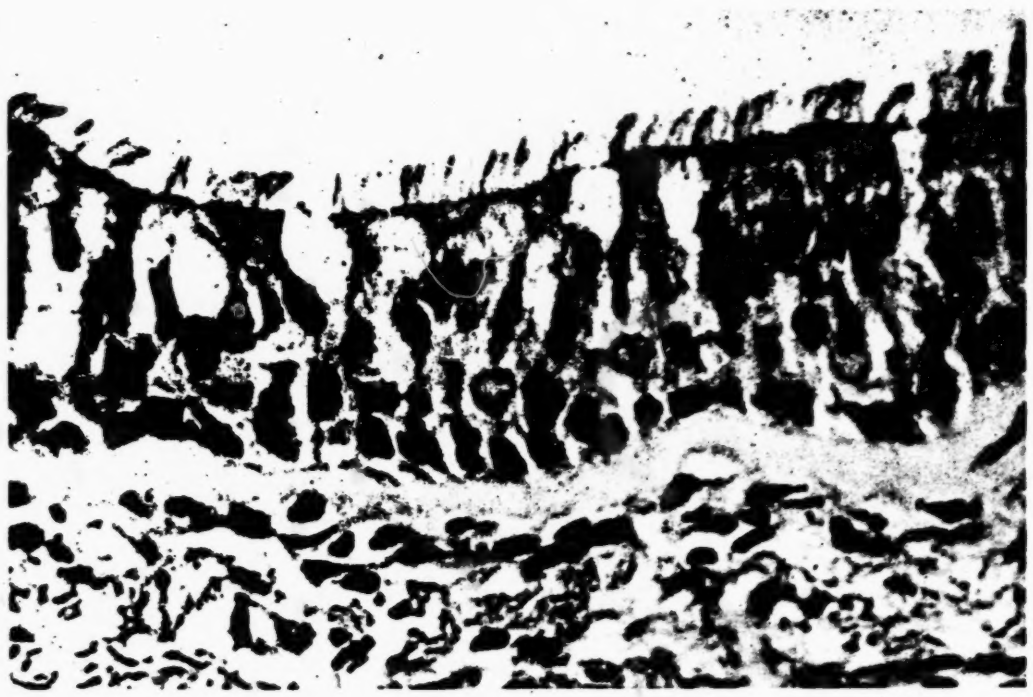
Persons are motivated to smoke for psychological as well as social reasons.

Analyze the smoking patterns of boys and girls. The Advisory Committee to the Surgeon General reported that

> Less than 5 per cent of the boys and 1 per cent of the girls smoke before age 12. At age 12 and above, however, there is a fairly regular increase in the

HOW CIGARETTE SMOKE DAMAGES THE BRONCHIAL TUBES

These are photomicrographs of tissue surgically removed from the bronchial tubes of a patient with chronic cough who was discovered to have lung cancer after years of cigarette smoking.



This shows a section of the bronchial tube lining that has not yet been damaged. The cells appear normal with their surfaces covered by hair-like projections, the cilia. These keep up a constant beating motion which carries mucous and foreign materials up the bronchial tubes and out of the lungs. Cigarette smoke stops the action of the cilia and eventually causes them to disappear.

In this section, almost all of the cilia have been destroyed. The only way mucous can be removed from this part of the lung is by coughing. The cell nuclei are also abnormal. Several are small and dark and appear to be paired. This is a pre-cancerous change. Further down the bronchial tract a cancer was found.

Photomicrographs courtesy of: C. R. Campbell, M.D.
Pathologist
Mills Memorial Hospital
San Mateo, California

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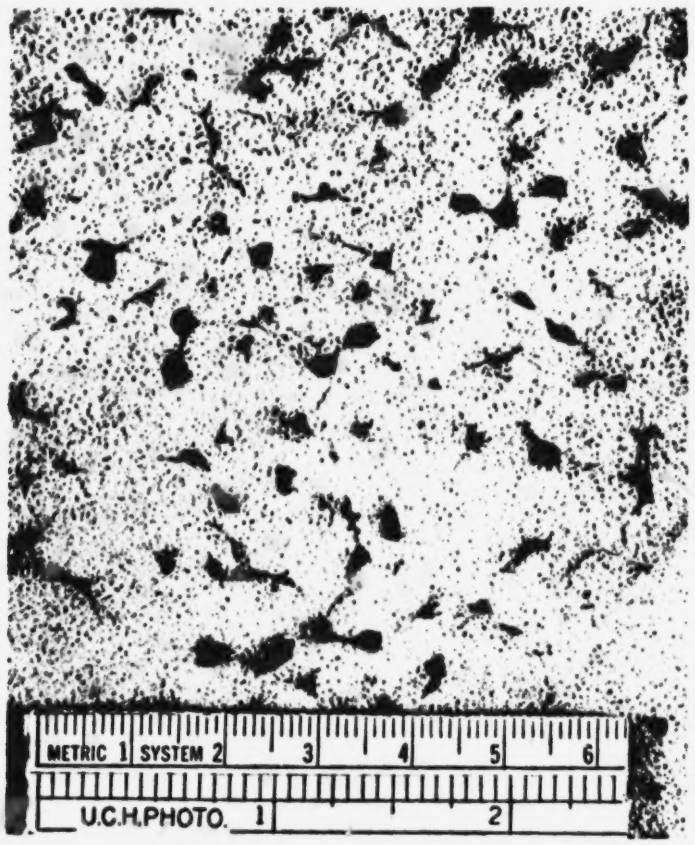
on Cigarette Smoking and Health

PULMONARY EMPHYSEMA

Emphysema is a degenerative lung disease, usually associated with obstructive airway disease and bronchitis; characterized mostly by shortness of breath on exertion.



Normal lung with clean pale air sacs. The black areas are normal bronchi and blood vessels.

Pulmonary emphysema with severe destruction of the air sacs. This causes shortness of breath because of an impairment to the transfer of oxygen and carbon dioxide in the blood.

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Photographs from: Robert Wright, M.D., Pathologist
University of California Medical Center
San Francisco, California

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	number of young people who smoke. At the 12th-grade level, between 40 to 55 per cent have been found to be smokers. Estimates of smoking prevalence in persons 25 years of age are as high as 60 per cent for men and 36 per cent for women. Ask class members to suggest some of the factors which tend to encourage young people to smoke. For example, --Boys and girls whose parents smoke are more likely to smoke than those whose parents do not. --Some boys and girls smoke because an older brother or sister smokes. --Many individuals are motivated to smoke in an attempt to achieve status among peers, to develop self-assurance, and to satisfy a striving for adult status.	U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington, D. C., 20402), pp. 368-373. Science Research Associates Guidance Series. Facts About Smoking and Health. pp. 24-78.
	Request the pupils to estimate the extent to which cigarette advertisements and commercials encourage young people to smoke. Ask pupils to collect and analyze cigarette advertisements appearing in newspapers and magazines. Assign them to identify the psychological reasons that are employed to induce persons to smoke certain brands of cigarettes. Appoint a committee to record the number of television programs sponsored by cigarette companies that are directed to teenage audiences. Report that more than 250 million dollars is spent annually on advertisements to promote the habit of smoking. Analyze the smoking habit. Compare smoking with other habits and mannerisms, such as thumb sucking, putting articles into the mouth, and nail biting. In addition to the conditioned behavior patterns associated with smoking, emphasize that the individual also develops dependence upon the nicotine contained in tobacco.	Neuberger, Maurine B. Smoke Screen - Tobacco and the Public Welfare. Englewood Cliffs, N.J.: Prentice-Hall, 1963. 151 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	Ask a pupil to report on the effectiveness of programs to stop smoking. Encourage pupils to interview family members who stopped smoking to find out why they did so. Emphasize that approximately 18 million persons who were regular smokers have become nonsmokers. The rate of regular smokers among physicians dropped from 60 to 30 per cent.	
The use of tobacco products has economic implications for the individual as well as the community.	Estimate the cost of smoking to the individual. Ask pupils to prepare a chart showing the amount of money that would be spent by persons smoking one half, one, and two packages of cigarettes per day for one month, one year, and ten years. Appoint several pupils to present a panel discussion concerning the following topics: --In view of the scientific evidence concerning the health hazards of smoking, should legislation be enacted to ban the sale of tobacco products? --In what ways might such a ban affect the economy of the community? For example, Loss of revenue from the sale of tobacco products. Loss of income derived from jobs involving the cultivation, preparation, distribution, and advertisement of tobacco products. --In what ways might such a ban be beneficial to the community? For example, prevention of economic losses incurred through Deaths directly related to smoking. The death rates each year attributable to cigarette smoking parallel those for automobile accidents (250,000 - 300,000 lives). Disablement of a portion of the working force. One out of every 14 wage earners over 45 years of age is disabled by pulmonary emphysema.	"Progress and Problems in Smoking Education--One Year After Establishment of the National Clearinghouse for Smoking and Health," The Journal of School Health (March, 1967), pp. 121-128.

UNIT V. ADDICTING, HABIT-FORMING, AND OTHER HARMFUL SUBSTANCES

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. How does the use of tobacco affect the individual and the community?	Appoint a committee to interview the school physician concerning the effects of smoking on junior high school boys and girls. Instruct the pupils to learn of the risks involved even when a person smokes occasionally, does not inhale, or smokes filter cigarettes. Discuss answers to the question, "Should boys and girls of junior high school age be allowed to purchase cigarettes?"	
	Ask a pupil to report on research efforts to develop a cigarette that does not contain harmful pollutants. Cite some of the reasons why such attempts have had little success. To what extent have cigarette companies been successful in reducing the tar and nicotine contents of various brands of cigarettes?	"Tar, Nicotine, & Filters." <u>Time</u> (March 24, 1967), p. 51.
Fires caused by smoking are responsible for loss of lives and property.	Appoint a pupil to find out the number of home and forest fires which have resulted from smoking. Why is carelessness associated with smoking particularly dangerous in Southern California? Emphasize that smoking in bed is a major cause of accidental fires in the home. Cite statistics concerning the loss of lives and property resulting from fires caused by carelessness while smoking. It is estimated that cigarette smokers are responsible for 90,000 fires a year.	

UNIT V. ADDICTING, HABIT-FORMING, AND OTHER HARMFUL SUBSTANCES

IV. EVALUATION

Suggested procedures which may be helpful in evaluating progress toward the stated objectives of this unit follow:

A. Tests and Inventories

1. Points of View and Beliefs Concerning the Effects of Addicting, Habit-Forming, and Other Dangerous Substances. Pupils are asked to react to the problems associated with the misuse of narcotic and other harmful substances.

2. Analyses of Misconceptions and Misleading Information. Pupils are asked to identify and refute misinformation concerning harmful substances.

3. Application of Principles. Questions of the "What would you do?" type are asked to test the ability of pupils to make intelligent decisions concerning the use of narcotics, alcohol, tobacco, and other harmful substances.

4. Sentence Completion Test. Pupils are instructed to complete statements, such as the following: "Probably the best response when offered a suspicious looking cigarette is _____".

Identification of Reliable Sources of Information. Pupils are requested to identify reliable sources of information on questions pertaining to addicting, habit-forming, and other dangerous substances.

Checklists. Pupils are offered lists of typical problems and concerns pertaining to situations involving the misuse of harmful substances. They are requested to identify those problems about which they would like more information.

B. Classroom Performance

1. Participation in Panel Discussions and Group Work.

2. Preparation of Oral and Written Reports.

UNIT VI

PROGRESS IN COMMUNITY HEALTH

I. SCOPE OF THE UNIT

Provision of a safe, sanitary, and wholesome environment is basic to the health and prosperity of a community. The learning opportunities which are described in Unit Six are directed toward helping pupils to develop an awareness of environmental health problems as they relate to both the individual and the community as a whole.

The suggested time allotment for completing this unit is two to three weeks. Modification of this time schedule should be based on pupil needs. Teachers should select from the range of activities suggested those which are best suited to the capacities and interests of individual classes.

II. CONCEPTS TO BE DEVELOPED

Community health is dependent in large measure upon the ability of the population to deal with the ecological (biophysical) forces of its environment.

A. In what ways may the ecological forces in a community affect the health of its population?

B. What is disease?

Disease is any condition of ill health or of malfunctioning in an organism.

Illnesses in which the predominant causative agent is a pathogenic organism are classified as infectious or communicable diseases.

C. How can the spread of disease-producing organisms be controlled?

Infectious agents are transmitted through contaminated water and food, by droplet infection, by vector, and through contact with an infected person or animal.

The destruction of infectious agents is an important aspect of disease control.

Body defenses against disease include the protective covering provided by the skin and mucous membranes, the phacocytic action of white blood cells, and the production of antibodies against pathogenic agents.

Immunity is the body's resistance against pathogens and other foreign agents.

Immunity to disease may be inherited or acquired.

Acquired immunity results from either having had a disease or having been inoculated against it.

D. What are the most prevalent diseases in the community?

The venereal diseases rank first among the reportable infectious diseases in the community.

The venereal diseases are a group of communicable diseases that are transmitted almost always through intimate physical contact with an infected person.

The organisms that cause venereal disease die very quickly when exposed to air; therefore, they almost never are transmitted by objects, such as towels, drinking glasses, or lavatory facilities.

The corkscrew-shaped organism that causes syphilis enters the body through mucous membranes and occasionally through breaks in the skin.

The venereal diseases can be diagnosed and treated only by a medical doctor. The person cannot be cured by self-treatment nor by "quacks."

Immunity does not result from having syphilis. The disease can be contracted again.

Gonorrhea, which is caused by a bean-shaped organism, is at least three times more prevalent than syphilis.

The family physician, the school physician or nurse, and the nearest county health department office can recommend reliable sources of information and advice concerning venereal disease.

Venereal disease is preventable, controllable, and curable.

E. What are the prevalent noninfectious diseases in the community?

Throughout the nation, noninfectious diseases constitute the leading cause of death in the community.

UNIT VI. PROGRESS IN COMMUNITY HEALTH

Cancer, a leading cause of death among persons of all ages, is a group of diseases characterized by abnormal cell growths.

Diseases of the circulatory system are a major cause of death among persons of all ages.

Diabetes mellitus, a metabolic disorder, ranks among the leading causes of death.

Approximately 1 person of every 10 is affected by allergies.

F. What community resources are available to help citizens with individual and group health needs?

Information concerning the selection of reliable health services and products is available through various community health agencies.

Laws to regulate the labeling, packaging, and distribution of health products protect the public in a variety of ways.

Programs to promote a safe, sanitary, and wholesome environment are conducted by the county and state health departments.

Educational and research activities concerning the cause and nature of diseases are conducted by various health agencies.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Community health is dependent in large measure upon the ability of the population to deal with the ecological (biophysical) forces of its environment.	Clarify the terms "community," "ecology," and "ecological system." Point out that a community consists of a group of persons living in a definite area under relatively similar conditions. Ecology is the study of the interrelationships of organisms and their environment. The ecological system consists of all those patterns or cycles of activity that go on between living organisms and their environment.	Scott, Foresman Series. Book Seven. pp. 280-282.
A. In what ways may the ecological forces in a community affect the health of its population?	Request pupils to list various types of communities which exist in this state and to name some of the characteristic ecological features of each. Develop a list of ecological conditions which are necessary to support human life. Ask for examples which illustrate how man is affected by his environment, and, conversely, how he affects it. Assign pupils to prepare special reports on environmental control systems which have been developed to assist astronauts in the exploration of space.	
B. What is disease? Disease is any condition of ill health or of malfunctioning in an organism.	Develop the concept of disease as any condition of ill health or of malfunctioning in an organism. Point out that diseases are classified according to their predominant causative factor and may result from a variety of direct and indirect causes. For example:	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What is disease? (cont.) Illnesses in which the predominant causative agent is a pathogenic organism are classified as infectious or communicable diseases.	-- Pathogenic microorganisms -- Physical and chemical agents -- Abnormal cell growths -- Congenital and inherited defects -- Degeneration of tissue function Instruct pupils to prepare a chart contrasting the differences between diseases. Which diseases have the greatest morbidity rate among the school age population? Which have the highest mortality rate? Communicable diseases also are called pathogenic or infectious because they are caused by a specific infectious agent or its toxic products. These may have been transmitted either directly from an infected person or animal, or indirectly through an intermediate plant, animal, or an inanimate object. Cite examples of some diseases which are produced by various kinds of infectious agents. An informational chart appears on the following page.	Scott, Foresman Series. Book Seven. pp. 281-283. California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. Berkeley: California State Department of Public Health, 1966. 423 pp.

CONCEPTS	ACTIVITIES AND INFORMATION		RESOURCES
	Type of Organism	Examples of Diseases Caused	
B. What is disease? (cont.)	Bacteria (one-celled organisms)		
	Coccus (sphere-shaped)		
	diplococci (appear in pairs)	pneumonia, gonorrhea	
	streptococci (appear in chains)	scarlet fever	
	staphylococci (appear in clusters)	boils and other skin infections	
	Bacillus (rod-shaped)	tuberculosis, tetanus	
	Spirillum (spiral-shaped)	cholera	
	Spirochete (corkscrew-shaped, motile organism)	syphilis	
	Fungi (simple, non green plants, such as molds, blights, yeast, smuts)	ringworm, coccidioidomycosis (valley fever)	
	Viruses (smallest known pathogenic organisms; visible by means of the electron microscope; grow only in live tissue culture)	poliomyelitis chickenpox smallpox common cold yellow fever	
	Ricketsiae (vary in size between a bacterium and a virus; grow only in live tissue)	Rocky Mountain spotted fever, typhus	
	Protozoa (one-celled organisms, such as the amoeba and the plasmodium)	malaria, African sleeping sickness, amoebic dysentery	
	Metazoa (many-celled organisms--parasitic worms and insects, such as the itch mite)	hookworm, tapeworm, trichinosis, scabies	

UNIT VI. PROGRESS IN COMMUNITY HEALTH

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What is disease? (cont.)	Ask pupils to list the ways in which some bacteria are beneficial to man. Use prepared slides, drawings, and other visual materials to present examples of various kinds of infectious agents.	
C. How can the spread of disease-producing organisms be controlled? Infectious agents are transmitted through contaminated water and food, by droplet infection, by vector, and through contact with an infected person or animal.	Trace the paths by which pathogenic organisms gain entry through -- Nose or mouth into the respiratory tract -- Mouth into the digestive tract -- Breaks in the skin or through mucous membranes Inoculate agar plates with common contaminants to demonstrate the extent to which microorganisms are present in the environment. Compare the extent of bacterial growth from exposure to the air in various locations at the school. Be sure to set aside control plates for each exercise. Consult a laboratory manual or similar reference for details concerning these suggested exercises and for descriptions of additional activities of this type. Expose a slice of banana, apple, potato, or orange to the air for several hours. Next, cover the specimen, and place it in a warm, dark location. After two or three days, observe the colonies of microorganisms which have appeared.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. Berkeley: California State Department of Public Health, 1966. 423 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How can the spread of disease-producing organisms be controlled? (cont.) The destruction of infectious agents is an important aspect of disease control.	Differentiate between asepsis (pathogen free) and antisepsis (pathogen destruction). Discuss the implication of each in terms of disease prevention and control. Ask pupils to identify several ways by which harmful microorganisms may be destroyed. Such methods include use of: Temperature (heat and cold) Antiseptics Disinfectants Direct sunlight Desiccation (drying out) Ultraviolet light rays Acids and alkalies Salt Drugs	
	Define the term "chemotherapy."	Scott, Foresman Series. Book Seven. p. 282
	Discuss the meaning of "antibiotic." Describe how Alexander Fleming discovered penicillin.	
	Obtain a lemon, grapefruit, or cantaloupe on which there is green mold. This type of mold is similar to penicillin.	
	Demonstrate that certain substances inhibit bacterial growth. Inoculate agar plates with bacteria from various sources. Place sensitivity discs or a coin washed in a 10 per cent solution of nitric acid in the center of the culture medium. After an incubation period of 24 to 48 hours, examine the area surrounding the inhibiting substance for bacterial growth. The effects of various disinfectants on microorganisms also may be ascertained by pouring the substances to be	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How can the spread of disease-producing organisms be controlled? (cont.)	tested (iodine, boric acid, lysol, commercial mouth washes) over agar plates which have been exposed to a contaminant. Be sure to set aside a control plate for each test. Assign pupil reports on the contributions of persons who have pioneered in the field of disease control. For example: Joseph Lister (carbolic acid) Louis Pasteur (pasteurization) Paul Erlich (salvarson, or 606) Gerhard Domagk (prontosil) Alexander Fleming (penicillin) Selman Waksman (streptomycin) Discuss recent developments in chemotherapy and in antibiotics. Identify some of the sources from which drugs are obtained (plants, animals, chemicals). Instruct pupils to search for recent articles and other sources of information dealing with accurate reports of the success of various new drugs. Devise a technique to demonstrate visually how pathogens may be spread. For example, ask a pupil to list all the contaminants that he, either as a germ carrier or as a susceptible host, may come into contact with during the day.	
Body defenses against disease include the protective covering provided by the skin and mucous membranes,	List the body's defenses against disease. Assign pupils to construct a chart showing how each defense protects the body against infectious agents. Ask the class the following questions concerning	Scott, Foresman Series. Book Seven. p. 282.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How can the spread of disease-producing organisms be controlled? (cont.) the phacocytic action of white blood cells, and the production of antibodies against pathogenic agents.	the reasons why some persons may contract an infection and why others may not: -- How many pupils have had the measles or the mumps? -- How many pupils have had a cold this year? How many have had several colds? Suggest how conditions relating to both the individual and his environment may influence the occurrence of disease and illness. Discuss why animals raised under "germ-free" conditions succumb rapidly to infection shortly after being removed from their sheltered environment.	
Immunity is the body's resistance against pathogens and other foreign agents.	Discuss the meaning of the term "immunity." Ask a pupil to read the dictionary definition to the class. Request class members to suggest an antonym for immunity (susceptibility). What is immunology? Point out that, in a limited sense, the science of immunology deals with the procedures by which the body develops a resistance to infectious disease. However, a more encompassing definition of this science has come to include similar immunological mechanisms, such as hypersensitivity, the study of heightened response to reactions involving allergies, acquired tolerance to and rejection of foreign tissue, and the autoimmune diseases (conditions wherein immune responses occur which involve the host's antigens). Emphasize that generally immunological reactions involve the body's ability to react to, or to reject, substances which are foreign to its own biochemical makeup. These foreign ("nonself") substances are called antigens. They may be bacteria, viruses, protozoa, fungi, foreign tissue cells, or other agents.	"The Mechanisms of Immunity," Scientific American, 204 (January, 1961), 58-67.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How can the spread of disease-producing organisms be controlled? (cont.)	The antigen stimulates the body to produce a counteracting substance called an antibody. The antibody combines with the antigen and renders it inactive.	
Immunity to disease may be inherited or acquired.	Ask pupils to prepare a chart showing the immunity which they have developed as a result of -- Having had a disease -- Having been immunized Identify several diseases from which man is naturally immune.	
Acquired immunity results from either having had a disease or having been inoculated against it.	Point out that active immunity is acquired from either having had a disease or having been inoculated with the specific antigen (attenuated or dead pathogens, or their toxic products). In the creation of this type of immunity, the body assumes an active role in the manufacture of antibodies. Passive immunity is produced through the transfer of serum containing "ready-made" antibodies from another person or an animal. Passive immunity is of short duration. Ask for reports concerning the ways in which various immunizing agents are developed: -- Vaccines (dead, or weakened pathogens) -- Toxoids (poisonous substances from pathogens) -- Immune serums (serum from the blood of a human being or animal who has recovered from the disease) Discuss why "booster" injections are required to maintain some types of immunization.	Scott, Foresman Series. Book Seven. p. 282.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
C. How can the spread of disease-producing organisms be controlled? (cont.)	Request pupils to check the derivation of the word "vaccination" or "vaccine" in the dictionary. Why is the term associated with smallpox? Ask pupils to write a paragraph on the significance of Edward Jenner's discovery. Discuss the procedures used by research workers to improve the effectiveness and safety of a vaccine. Discuss the differences between the Salk and Sabin vaccines. Appoint a pupil to interview the school nurse concerning the purposes of the tuberculin testing program. Instruct pupils to list the recommended immunizations which -- All pupils should have. -- All adults should have. -- They already have received. -- They should now receive. Conduct a class discussion concerning why people fail to take advantage of the immunizing agents available to them. Ask each pupil to develop a list of reasons why he should be immunized at recommended intervals. Instruct pupils to develop an immunization record and schedule to help them remember which immunizations they have had and when others may be needed.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community?	Report that infections of the upper respiratory tract are responsible for more time lost from work and other productive pursuits than are infections of any other type. An estimated incidence of one billion respiratory infections occur each year in the United States. These infections include the common cold, influenza, bronchitis, laryngitis, sinusitis, and the pneumonias. Appoint a pupil to report on the number of school absences which occurred during the past year because of respiratory infections. During which months did the greatest number of absences occur? Differentiate between the terms "reportable" and "non-reportable" in relation to infectious disease. Explain that reportable diseases are those which California state laws require that physicians report to county health departments. Statistics concerning the incidence of these diseases in the county are listed in the Morbidity and Mortality Weekly Report, published by the Los Angeles County Health Department.	U. S. Department of Health, Education, and Welfare, Public Health Service. Monthly Vital Statistics Report. (National Center for Health Statistics, Washington, D.C. 20201).
The venereal diseases rank first among the reportable infectious diseases in the community.	Analyze with pupils the health statistics concerning the leading reportable infectious diseases in Los Angeles County. Request that pupils construct graphs which illustrate local disease problems in relation to these statistics. Analyze the incidence of venereal disease in the community. Point out that, within the past several years, the incidence of this disease has increased about 200 per cent in some sections of the United States.	Lyons and Carnahan. Venereal Diseases. 32 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	It has increased as much as 800 per cent in other areas. The incidence of venereal disease now constitutes the leading communicable disease problem in many states, including California. Venereal disease also ranks first among the reportable diseases in Los Angeles County.	
The venereal diseases are a group of communicable diseases that are transmitted almost always through intimate physical contact with an infected person.	Explain to pupils that venereal disease is a term that is applied to a group of diseases which are passed almost always through intimate body contact (usually sexual) with an infectious person. -- The two most common of these diseases are syphilis and gonorrhea.	
The organisms that cause venereal disease die very quickly when exposed to air; therefore, they almost never are transmitted by objects, such as towels, drinking glasses, or lavatory facilities.	-- The microorganisms that cause these diseases enter the body through unbroken mucous membranes and occasionally through breaks in the skin. -- They die when exposed to heat, drying, or soap and water. -- There is little evidence of these diseases being transmitted by inanimate objects, such as toilet seats, drinking glasses, or towels. -- Expectant mothers with the infection can transmit the disease to babies before or during birth. -- There is usually no effective immunity against these diseases, and they can be contracted over and over again.	
	Clarify the meanings of following terms in relation to the study of venereal diseases: -- Syphilis: An infectious disease that may spread throughout the entire body (systemic). -- Gonorrhea: An infectious inflammatory disease, usually confined to the genital and urinary tracts in the early stages of its development.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	-- Neurosyphilis: A stage of syphilis which involves the brain and spinal cord and which may result in paresis, a form of syphilitic insanity and locomotor ataxia. This is a disorder of the nervous system caused by syphilis and characterized by difficulty in coordinating voluntary movements. -- Congenital syphilis: A form of syphilis contracted by the unborn infant from its infected mother. -- Chancre: The initial "sore" in syphilis. -- Lesion: Diseased or injured tissue. -- Ulcer: An open sore. -- Latent: Not visible nor apparent; dormant. -- Degeneration: Deterioration of tissue or organ.	
The corkscrew-shaped organism that causes syphilis enters the body through mucous membranes and occasionally through breaks in the skin.	Present an overview of the pertinent facts about syphilis. Point out that man is the only known reservoir of syphilis and that every person is susceptible to the disease. It is prevalent throughout the world and has presented a major public health problem since 1493, when Columbus' sailors were treated in Barcelona, Spain, for a "new" disease which they had contracted in the West Indies. There is no well founded previous historical or scientific evidence to indicate that syphilis was present in Europe prior to this date. Causative Agent The corkscrew-shaped organism that causes syphilis is the spirochete Treponema pallidum. It is such a delicate microorganism that it can survive only a short time outside the body. It is easily killed by drying, sunlight, and disinfectants. In the early stages of syphilis, the presence of the pathogen can be determined by the examination of some of the serum from the chancre (sore). A microscope with dark-field illumination is used for this purpose. (In this method of microscopy, the object is visible only because it reflects light.)	U. S. Department of Health, Education, and Welfare. The Eradication of Syphilis. (U. S. Government Printing Office, Washington, D.C. 20402).

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

D. What are the most prevalent diseases in the community? (cont.)

The usual method of staining bacteria for identification cannot be employed. The organism was first identified by Schaudinn and Hoffman in 1905.

Transmission of Treponema pallidum

Transmission of the organism results from direct physical contact with an infectious lesion. The spirochete enters the body through minute breaks in the skin, or through unbroken mucous membranes, and is carried throughout the lymphatics, finally entering the blood stream. The habitat of Treponema pallidum is deep in the body tissues. However, when the organism is deposited on moist, warm, mucous surfaces, or breaks in the skin, it can survive well enough to establish a colony, penetrate the surface, and eventually spread throughout the body.

An expectant mother can transmit the spirochete to the fetus through the placental blood system. This action causes congenital syphilis.

Stages and Complications of the Disease

Primary (Early) Stage

This stage of the disease is characterized by a painless but highly contagious lesion called a chancre (shanker), which may appear at any time from 10 to 90 days after intimate contact with an infectious person. The chancre begins as a sore at the site where the spirochete entered the body. This can occur on other parts of the body, but it is most commonly found on the genital organs and occasionally in or around the mouth. In men, the sores generally appear externally on the sex organs. However, in the case of women, the lesion may be internal and thus hidden from view. The lymph glands near the infection

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	may become swollen. In persons of either sex, the lesion may disappear in two to five weeks without having been treated and so appear to be healed. Thus, a person with the infection could pass through the primary stage without recognizing it. During this stage, the disease may or may not be detectable through use of blood tests. Secondary Stage Symptoms of secondary syphilis usually occur in about four to eight weeks after the appearance of the chancre. A skin rash may occur on any part of the body, and lesions of the mucous membrane surfaces often appear. Other symptoms at this time may include a sore throat, fever, mouth sores, headache, swollen lymph glands, pains in the bones and joints, falling hair, and mucous patches which may appear in the mouth or around the sex organs. At this stage, the disease can be transmitted through kissing as well as sexual contact. Symptoms may occur, subside, and recur for a period of four or five years after initial contact and will vary both in appearance and intensity in different persons. Like the primary stage, the secondary stage is also a contagious period. The symptoms also will disappear without having been treated. Latent Stage During this stage, there are no visible signs nor symptoms of the disease. The manifestations of the secondary stage gradually disappear, and the disease passes into a period of latency. The orgnisms become imbedded in various body tissues, and the only means of detecting the presence of syphilis is through use of a blood test. This period lasts from 2 to 50 years, but more commonly from 5 to 25 years.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	Late Stage After five years, untreated cases may or may not present manifestations of the infection. When apparent signs of the disease do appear, they often resemble or "imitate" the symptoms of other diseases. The nature of these symptoms depends upon what tissues have been destroyed. During this stage, progressive degeneration of the brain and spinal cord (paresis and locomotor ataxia) may occur, as well as damage to the heart and blood vessels and to the joints. Blindness, deafness, running sores, and tumor-like masses of the skin and mucous membrane are among the end results of the disease. The U.S. Public Health Service estimates that 1 in 15 will become a syphilitic heart victim. 1 in 25 will be crippled or incapacitated. 1 in 50 will become insane. 1 in 200 will become blind. Approximately 8,500 deaths each year are attributed to syphilis. These end results of the disease may take place as late as 20 to 30 years after the appearance of the original chancre, the first sign of the infection. Generally, this last stage of syphilis is non-infectious. Congenital Syphilis A pregnant woman infected with syphilis may easily transmit the disease to her unborn child if she does not receive prompt medical treatment. The risk of congenital syphilis is much greater if pregnancy occurs while the disease is in its early stages, and it is less likely to be a problem if pregnancy occurs in the later stages. By the fourth month of pregnancy, the condition of the placental membrane barrier is such that the organisms of syphilis can penetrate the wall and thus infect the unborn child. Congenital syphilis is frequently fatal during the	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	prenatal stage or during infancy. Treatment, preferably started by the fourth month and continued through the remainder of the pregnancy, usually assures the mother of a live baby free of syphilis. Affected babies, however, may have skin, liver, bone, lung, eye, adrenal, ear, or tooth disorders. Recent investigations show that, with the use of penicillin, treatment can be started later in pregnancy, sometimes as late as a few weeks before birth, and that damage to the fetus may be prevented. Prevention and Control	
The venereal diseases can be diagnosed and treated only by a medical doctor. The person cannot be cured by self-treatment nor by "quacks."	Diagnosis of syphilis can be ascertained only by a medical doctor. A clinical examination, including microscopic dark-field examination for the organism and blood tests, such as the Wasserman, Kahn, Kolmer, and VDRL (Venereal Disease Research Laboratory), are necessary. These tests determine the presence in the blood of "reagin," an antibody substance produced usually in response to syphilis but sometimes also in response to other infections ("biologic false positives"). Another test, the T.P.I. (Treponema pallidum Immobilization Test) can be used to determine the presence in the blood of antibodies specific only to Treponema pallidum. Diluted blood serum from the patient is mixed with live Treponema pallidum, which has been obtained from a syphilitic rabbit. The mixture then is examined microscopically. If the specific antibody is present, the treponemes are immobilized. Blood serum from a patient without the infection, or from a patient with a biologic false positive serologic test, has no effect on the motile spirochetes. The procedure for the Fluorescent Treponemal Antibody Test (FTA) consists of reacting the patient's serum with	Page, Lot B. and Perry J. Culver. A Syllabus of Laboratory Examination in Clinical Diagnoses. Cambridge: Harvard University Press, 1960. p. 456.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	a dried smear of intact cells of Treponema pallidum. The smear is then stained with a fluorescein-conjugated anti-serum against human gamma globulin. Treponemal antibodies (gamma globulin), if present, will coat the treponemal cells. The tagged anti-gamma globulin will then attach to the coated cells, which become visible microscopically when illuminated by ultraviolet light.	Bio-Science Laboratories. Specialized Diagnostic Laboratory Tests. p. 112.
Immunity does not result from having syphilis. The disease can be contracted again.	Measures for the prevention and control of syphilis are as follows: 1. Programs of case-finding and reporting, which include interviewing of patients, tracing of contacts, and provision for early diagnosis and treatment. 2. Hygienic techniques, including special care in the disposal of discharges from open lesions and articles soiled by them, and attention to personal cleanliness. 3. Premarital and prenatal health examinations. 4. Mass education programs on the nature, cause, and incidence of the disease. Venereal disease rates are high among promiscuous persons because promiscuity increases the chance of infection.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. Berkeley: California State Department of Public Health, 1966. pp. 328-335. "Venereal Disease in California--A Report to the Legislature," California's Health, 20 (February 15, 1963), 1.
Gonorrhea, which is caused by a bean-shaped organism, is at least three times more prevalent than syphilis.	Present an overview of the pertinent facts about gonorrhea. -- Point out that gonorrhea is a purulent (pus-producing) infection which most commonly attacks the mucous membrane linings of the genital-urinary tract, the rectum, and the eye (conjunctiva). -- Emphasize that man is the only known reservoir of the disease and that every person is susceptible to it.	Lyons and Carnahan. Venereal Diseases 32 pp.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	Gonorrhea is world-wide in distribution. It has a history which goes back at least to Hippocrates (460 B.C.) and to Galen (200 A.D.), who gave the disease its name. Although rarely as destructive as late syphilis, gonorrhea can cause sterility, blindness, arthritis, and heart trouble. -- Report that gonorrhea is among the major communicable diseases. It affects persons of both sexes and of practically all ages, especially the 15-29 group. Its rate of occurrence is much greater than that of syphilis. There are no reliable estimates of the true incidence of the disease. However, it is estimated that there are about 1,300,000 new cases each year and that about 200 deaths are caused annually by the disease. Approximately 500,000 cases are under treatment at all times.	

Causative Agent

The pathogenic agent of the disease is the diplococcus, Neisseria gonorrheae. This bacterium is shaped very much like a coffee bean and occurs in groups of twos. The microorganism is very delicate and dies within minutes after leaving the body. It is easily destroyed by the use of mild antiseptics or soap and water. However, the gonococcus is highly resistant when within the body and can be destroyed only by proper medical treatment.

California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. Berkeley: California State Department of Public Health, 1966. pp. 140-148.

Transmission of Neisseria gonorrheae

The organism usually is transmitted from one person to another through intimate contact, nearly always sexual intercourse. The gonococcus is usually contained in the

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES

D. What are the most prevalent diseases in the community? (cont.)

purulent discharges from the infected mucous membranes. On occasion, this disease may be transmitted by the use of moist, contaminated articles, such as towels, which have been freshly soiled by discharge from an infected person. Gonorrhea also may be transmitted by a mother who is infected with the disease to a newborn infant during its passage through the birth canal. In such cases, the infant's eyes may become infected with the gonococcus organism. In this way, it is also possible to transmit the infection to the eyes.

Symptoms and Complications of the Disease

The incubation period (the time interval between the initial infection and the appearance of symptoms of the disease) is generally three to five days. Gonorrhea in the male and female differ in seriousness and ease of identification.

In the male, symptoms and complications of the disease include:

1. An itching or burning sensation about the genital organs.
2. A thick, yellow, purulent (pus) discharge from the urethra, occurring usually anywhere from three to nine days following infection.
3. Painful sensation during urination.
4. Inflammation and scarring of tissue. The infection may travel to the posterior urethra, epididymis, and prostate gland; and, after varying intervals, can travel to other body tissues. Inflammation of the urethra may form scar tissue, which makes urination difficult.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	In the female, the symptoms are often so mild that they are unnoticed. Thus, a woman may be infected without knowing it. 1. Initially, the infection may involve the urethra, the cervix, the vagina, the uterus, and the Fallopian tubes. 2. Acute peritonitis may occur if the infection travels to the Fallopian tubes and the pus which is formed enters the peritoneal cavity. Sometimes the swelling and closing of the Fallopian tubes, prevent the passage of ova, and sterility results. 3. A third stage of widespread infection results in damage to other body tissues, such as the bones, joints, and the heart. Although death from gonorrhea is rare, complications are often very serious. Infection of the eyes during birth formerly caused blindness, but the placing of a few drops of a prophylactic medicine in the eyes of newborn babies (required by law in most states) has eliminated nearly all blindness from gonorrhea. Prevention and Control Diagnosis can be made only by a medical doctor through a clinical examination, study of the personal history of the patient, and microscopic examination of the pus or discharge (using Gram stain) and laboratory culture of the organisms. Several antibiotics, including penicillin, are used in the treatment of the disease. In both men and women, the disease remains infectious until cured.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. Berkeley: California State Department of Public Health, 1966. pp. 140-149.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	Measures for the prevention and control of gonorrhea are as follows: 1. Programs of case-finding and reporting which include interviewing of patients, tracing of contacts, and provision for early diagnosis and treatment. 2. Hygienic techniques, including special care in the disposal of discharges and articles soiled by them, and attention to personal cleanliness. 3. Premarital and prenatal health examinations. 4. Mass education programs on the nature, cause, and incidence of the disease.	"Venereal Disease in California--A Report to the Legislature," California's Health, 20 (February 15, 1963), 1.
The family physician, the school physician or nurse, and the nearest county health department office can recommend reliable sources of information and advice concerning venereal disease.	Report the extent of services which are provided by the local health department in an effort to prevent the spread of venereal disease. For example: -- Clinics for diagnosis and treatment. (Physicians are available.) -- Contact interviewing and follow-up. -- Laboratory diagnostic services for clinic patients. -- Educational materials for distribution to physicians, schools, and the general public.	
Venereal disease is preventable, controllable, and curable.	Provide a question box so that pupils may submit inquiries on venereal diseases without embarrassment. Invite the school physician or nurse to answer the questions submitted by pupils. Formulate a list of discussion questions to be answered by pupils after they view "About Venereal Disease," a filmstrip. Following are examples of suggested questions:	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
D. What are the most prevalent diseases in the community? (cont.)	-- What do venereal diseases have in common with other communicable diseases? -- How do the characteristic symptoms of syphilis and gonorrhea differ from those of other communicable diseases? -- What is the sensible thing to do if a person needs advice about venereal disease? -- Where can a person obtain reliable information about venereal disease? -- Why are approximately four-fifths of the cases of venereal disease never reported to the health department? -- What complications can result if cases of syphilis and gonorrhea are not properly diagnosed and treated? -- Why should persons cooperate in the reporting of venereal disease to the health department? -- Why do some persons who may need medical treatment for venereal disease resort to self-medication or consult medical "quacks?" Encourage pupils to visit the community health center and to report the highlights of the visit to the class. Ask pupils to read about and discuss the various methods used by the community to control the spread of pathogens. Ask pupils to prepare a glossary of terms used in connection with the study of communicable diseases. Request that pupils bring to class reports from newspapers and other sources concerning the frequency of cases of communicable diseases and their effects. Name several communicable diseases for which no cures thus far have been discovered.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the prevalent noninfectious diseases in the community?	Ask the class members to suggest several reasons why the chronic and degenerative diseases are today the chief cause of death and crippling of persons in the United States.	Scott, Foresman Series. Book Seven. pp. 287-289.
Throughout the nation, noninfectious diseases constitute the leading cause of death in the community.	Analyze with pupils the public health statistics regarding noninfectious diseases. Point out that cancer, congenital malformations, and heart disease are the five leading causes of death among junior high school pupils.	
Cancer, a leading cause of death among persons of all ages, is a group of diseases characterized by abnormal cell growths.	Explain that cancer is an uncontrolled growth of abnormal cells, which crowd out and destroy healthy cells. Emphasize that there are many different kinds of cancer. Use charts, slides, and other visual materials to contrast a healthy cell with a cell that is cancerous. Indicate that, in a cancerous cell, the nucleus, the chromosomes which are comprised of the genetic code carrying substance DNA (desoxyribonucleic acid), and the cytoplasm are disturbed in such a manner that the cell no longer functions or reproduces normally. The cancerous cells, which are usually larger and more irregular than normal cells, multiply to form tumorlike masses of tissue that interfere with body functions. Develop a list of vocabulary terms which are associated with cancer. For example: Benign Biopsy Carcinogen Cytologist Pathologist Leukemia Virologist	U. S. Department of Health, Education, and Welfare, Public Health Service. The Challenge of Cancer. (U. S. Government Printing Office, Washington, D.C. 20402).

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the prevalent noninfectious diseases in the community? (cont.)	Define the term "carcinogen" (cancer-causing agent). Ask the class to make a list of probable sources of carcinogens that may be present in man's environment. For example: -- Air pollution -- Radiation from ultraviolet rays and from materials that are radioactive -- Certain industrial and chemical agents (arsenic compounds, radium, dusts of certain ores) Instruct pupils to identify several ways in which a person can expose himself needlessly to probable cancerous risks through personal choice or habit. These include: -- Smoking -- Exposure to excessive amounts of ultraviolet rays of sunshine -- Chronic irritation, such as that caused by broken teeth or poorly fitting dentures Ask for a report on "The Virus as a Suspected Cause of Cancer." Request that pupils present reports concerning recent developments in cancer research. Assign a pupil to report on the work of Virchow, who, in his studies on the structure and behavior of cells, described health as the "harmony" and disease as the "disharmony" of the cells. Stress the importance of early detection and treatment of cancer. Discuss the relationship of smoking to lung cancer.	U. S. Department of Health, Education, and Welfare, Public Health Service. Cancer Cause and Prevention. (U. S. Government Printing Office, Washington, D.C. 20402).

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the prevalent noninfectious diseases in the community? (cont.) Diseases of the circulatory system are a major cause of death among persons of all ages.	List the "danger signals" of cancer. Assign pupils to prepare sample posters pointing out these symptoms and the importance of early detection and treatment. Conduct a class discussion on "cancer quackery." Use public health statistics to point out what age groups are affected particularly by diseases of the cardiovascular system. Emphasize that these diseases can occur at any age. Some children are born with such conditions (congenital heart defects). However, the death rate from cardiovascular diseases is highest among persons 25 years of age and over. The rate is lowest among children 1 to 4 years of age. Discuss the various methods used to detect heart disease. Why is a periodic health examination important? Ask for reports on the effects of obesity, diet, and smoking on the circulatory system. Cite the beneficial effects of exercise in the prevention of heart disease. Explain that heart disease is a general term used in referring to at least 20 different kinds of heart conditions. The three most common types--rheumatic heart disease, hypertensive, and coronary artery disease--account for more than 90 per cent of the deaths. Report that rheumatic fever is the major cause of heart disease among boys and girls of school age. The condition is the result of inflammation and scarring of heart muscle and of the heart valves following rheumatic fever. The scarring may impair the function of the valves so that they do not open fully nor close completely. This disorder interferes with the pumping	U. S. Department of Health, Education, and Welfare. National Vital Statistics Division. Vital Statistics of the United States. (U. S. Government Printing Office, Washington, D. C. 20201). U. S. Department of Health, Education, and Welfare. National Heart Institute. Rheumatic Heart Disease. (U. S. Government Printing Office, Washington, D. C. 20201).

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the prevalent noninfectious diseases in the community? (cont.)	action of the heart and disrupts the blood flow. A physician listening to a rheumatic heart usually can detect a blowing noise called a murmur. Emphasize, however, that murmurs do not necessarily indicate heart damage. Assign a pupil to present a special report on the cause, prevention, and treatment of rheumatic fever. Point out that the cause of this disease is not completely understood. Rheumatic fever is not contagious; however, the results of research have shown that 90 per cent of the cases of this disease are preceded by a particular streptococcal infection (Group A hemolytic streptococcus of the throat, nose, or tonsils).	
Diabetes mellitus, a metabolic disorder, ranks among the leading causes of death.	Report that diabetes mellitus still ranks among the 10 leading causes of death in the United States. Health authorities estimate that there are nearly 3,000,000 cases of diabetes in this country. Of this number, approximately 1,500,000 are diagnosed, leaving about 1,500,000 which have not been diagnosed. More adults than children are diabetic; however, there are approximately 50,000 children under the age of 15 with this condition. Heredity seems to be a significant factor in the occurrence of diabetes mellitus. Obesity appears to cause the condition to develop more rapidly. A higher case rate is reported among women than among men. Point out that diabetes mellitus is a condition in which the body's ability to metabolize carbohydrates is impaired. This is the result of the insufficient production of the hormone insulin, a substance which is secreted by the pancreas and which is necessary for the complete metabolism of glucose by the body cells. The	Conklin, Groff. Diabetics Unknown. New York: Public Affairs Committee, 1963. pp. 4-5. Scott, Foresman Series. Book Seven. pp. 167, 280.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the prevalent noninfectious diseases in the community? (cont.)	unmetabolized sugar begins to accumulate in the blood in abnormal amounts; and, as the blood-sugar concentration exceeds the renal threshhold, excess sugar is passed in the urine. Describe the work of Fredrick Banting in developing a treatment for this condition. Use charts and models to identify the portion of the pancreas (Islands of Langerhans) which is responsible for the secretion of the hormone insulin. Invite the school nurse to discuss and to demonstrate various screening procedures that are used to help diagnose cases of diabetes.	
Approximately 1 person of every 10 is affected by allergies.	Determine how many pupils in the class have allergies. Define the terms "allergy" and "allergen." List common substances to which some persons are allergic, such as: Ragweed pollen Poison ivy Foods Feathers Detergents Cosmetics Penicillin Compare the mechanisms which are involved in the development of immunity to disease with those which concern allergic reactions. Point out that both are immune reactions. Mention briefly some of the tests which are used to identify allergic manifestations.	U. S. Department of Health, Education, and Welfare. Allergy. (U. S. Government Printing Office, Washington, D. C. 20402).

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
E. What are the prevalent noninfectious diseases in the community? (cont.)	Report that asthma is sometimes classified as an allergic reaction because it seems to be initiated periodically in response to various stimuli (allergens, foods, infections, emotions). A U. S. Public Health Service pamphlet reports that approximately 75 per cent of the persons who have asthma are allergic to one or more foreign substances.	U. S. Department of Health, Education, and Welfare. Asthma. (U. S. Government Printing Office, Washington, D. C. 20402).
F. What community resources are available to help citizens with individual and group health needs?	Instruct pupils to list examples of products and services which may be classified as "health-related." Ask, "In what ways may a person's health be affected by the nature of health services and products that he selects?"	Scott, Foresman Series. Book Seven. pp. 186-188.
Information concerning the selection of reliable health services and products is available through various community health agencies.	Cite the dangers of seeking medical and dental treatment from persons who are not licensed physicians or dentists. How can a person obtain information concerning the selection of competent medical and dental advisors? Suggest that this information may be obtained by -- Contacting the Los Angeles County Medical Association or the Los Angeles County Dental Society. -- Requesting assistance from a physician or dentist. -- Checking with the County Health Department or the Federal Food and Drug Administration regarding the credentials of persons offering "secret processes" and "miracle cures."	
	Report that medical quackery is today one of the major health problems confronting the public. Hundreds of millions of dollars are spent each year on worthless treatments and medicines. Define "medical quackery" as fraudulent and unauthorized practices of persons who pretend professionally or publicly to possess medical skills, knowledge, or qualifications.	Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 68-72.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. What community resources are available to help citizens with individual and group health needs? (cont.)	Quackery includes -- Practice of the healing arts by persons who are not qualified. -- Use of worthless methods, whether by qualified or unqualified practitioners. -- Distribution of drugs and devices which are worthless for the purposes for which they are offered. Identify some of the ways in which "quacks" reach the public. These include use of: -- Lectures -- "Sure-cure" clinics and health resorts -- Door-to-door peddlers -- Mail order solicitations -- Advertising schemes -- Healing cults Discuss with pupils some of the suggested ways of recognizing "quacks" and quackery. Emphasize that a "quack" usually: -- Promises a "sure" cure -- Claims his treatment is "secret" -- Finds that everyone who consults him is in need of his treatment -- Offers testimonials from patients whom he has "cured" -- Claims that he is being persecuted by the medical profession -- Advertises his services -- Offers an unorthodox treatment -- Displays diplomas and licenses from unrecognized schools	Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 71-72. "Don't Get Trapped by a Psychoquack," Today's Health. (March, 1964), 29-31.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. What community resources are available to help citizens with individual and group health needs? (cont.)	-- Uses the titles and symbols of unfamiliar degrees and affiliations to mislead the public. In contrast, the legitimate medical practitioner -- Holds a degree from a recognized medical school. -- Is licensed to practice by a state licensing board. -- Is a member of the local medical society. -- Has served an internship. -- Is usually on the staff of one or more hospitals. -- Offers no "cure-alls" for sale. Ask pupils to bring to class descriptions of questionable treatments and cures from advertisements, magazine articles, pamphlets, brochures, books, and other printed materials. Request that pupils describe the procedures that they would use to determine the authenticity of a proposed health treatment or cure.	
Laws to regulate the labeling, packaging, and distribution of health products protect the public in a variety of ways.	Review the significance of labels. List the kinds of information which may appear on the labels of cosmetics, drugs, and packaged foods. Ask pupils how this information may be useful in selecting various brands. Suggest other aids which are available to the consumer. Assign pupils to report on the purposes of the Federal Food, Drug, and Cosmetic Act. Discuss the kinds of research undertaken to make sure that foods, drugs, and cosmetics are safe for use. Discuss city, county, and state regulations concerning foods and drugs. How do these regulations protect the consumer?	Scott, Foresman Series. Book Seven. pp. 186-203.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. What community resources are available to help citizens with individual and group health needs? (cont.)	Point out false and misleading statements about health products advertised in newspapers and magazines and on radio and television programs. Instruct class members to write sample commercials about fictitious products. Discuss some of the reasons why persons resort to self-diagnosis and self-medication. Point out to pupils that self-diagnosis and self-medication may: -- Remove or reduce the symptoms but not the illness. -- Delay proper treatment. -- Interfere with proper diagnosis. -- Cause allergic reactions. -- Aggravate conditions (appendicitis). Ask pupils to list symptoms which may be common to more than one illness. Why are symptoms called danger signals? Illustrate some of the techniques used by advertisers to sell nonprescription "patent" medicines for weight control, described as "magic formulas" or "health cures." Instruct pupils to bring to class copies of testimonials for nonprescription "patent" medicines reported in newspaper and magazine advertisements and in television commercials. Ask pupils to describe how illustrations were used to make the testimonials more convincing. Instruct pupils to analyze the reliability of the statements.	Scott, Foresman Series. Book Seven. p. 187.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. What community resources are available to help citizens with individual and group health needs?	Request that pupils prepare a list of non-scientific beliefs about health. Discuss how these beliefs might have begun. Discuss the importance of using only those drugs prescribed for a patient by a physician. Why should "left over" medicine be destroyed? Ask a pupil to interview a pharmacist and to report to the class why: -- Certain medicines may be obtained only by prescription. -- Some prescriptions cannot be refilled. -- Patent medicines may be dangerous. Appoint pupil committees to present a "medicine show" or radio or television skit to advertise the sale of health products. List several reliable sources for checking the accuracy of claims about health products. Suggested sources include: -- Family physician or dentist -- District office, United States Food and Drug Administration -- The Federal Trade Commission, Bureau of Investigation, Washington, D. C. -- Los Angeles City Health Department -- Greater Los Angeles Nutrition Council -- The United States Post Office Department, Office of General Counsel, Washington, D. C. (for mail-order products) -- The American Medical Association, Bureau of Investigation, Chicago -- The American Cancer Society, Committee on New or Unproved Methods of Treatment -- Better Business Bureau of Los Angeles	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
r. What community resources are available to help citizens with individual and group health needs? (cont.) Programs to promote a safe, sanitary, and wholesome environment are conducted by the county and state health departments.	Describe briefly how the community is organized to meet the health needs of its residents. Point out that -- The organizations which are directly concerned with health may be classified into these categories: official, voluntary, or professional. -- The official agencies include county, state, and federal health departments and offices. These agencies operate in their respective political jurisdictions. -- The county health department is directly responsible for meeting the health needs of county residents. -- The state health department has supervisory functions as well as direct responsibility in certain situations involving intercounty and state-wide problems. -- The United States Public Health Service has supervisory functions as well as responsibilities for the enforcement of health regulations applying to persons entering the country, quarantines, and problems which may be international in scope. Ask for a report on the scope of activities and responsibilities of the county health department. Assign reports on the problems of air and water pollution in Los Angeles County. What activities are being conducted by official health agencies to control these problems? Appoint a committee to perform the following exercise on air pollution and to report its findings to the class:	U. S. Department of Health, Education, and Welfare. Public Health Service. The Struggle for Clean Water. (U. S. Government Printing Office, Washington, D. C. 20402).

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
F. What community resources are available to help citizens with individual and group health needs? (cont.)	-- Coat one side of a microscope slide or a glass plate with a petroleum jelly, and attach the slide to a clothesline or similar structure. Place several treated slides in various locations. After a specific period (2 to 24 hours), collect the slides and label each according to its duration of exposure and location. Next, place the slides on a sheet of white paper and expose them to a bright light. Observe changes in the color of the slides, and note the variety of types and amounts of particles. If possible, examine the slides under a microscope. Record observations, and make comparisons of the data obtained from the various samples.	"The Modern Miasmas," Health Bulletin for Teachers, 29-2 (Metropolitan Life Insurance Company), 1-6. Los Angeles County, Air Pollution Control District. What We're Doing About Smog. "Air Pollution and Public Health," Scientific American, 205 (October, 1961), pp. 49-57.
Educational and research activities concerning the cause and nature of diseases are conducted by various health agencies.	Appoint committees to make a list of agencies and organizations within the community which support activities relating to health education and research, and the treatment of persons with specific diseases.	"Control of Air Pollution," Scientific American, 210 (January, 1964), pp. 25-31.

IV. EVALUATION

Planned evaluation is an integral part of every learning activity. Pupil progress in achieving the purposes of this unit can be determined in such ways as the following:

A. Tests and Inventories

1. Analyses of Community Health Problems. Pupils are asked to react to the description of a community health problem in terms of what they consider to be its nature and scope and to propose solutions to the problem.
2. Interpretations of Data Concerning Community Health Problems. Tables and charts are presented to illustrate specific health problems, and pupils are requested to formulate conclusions based on the data.
3. Application of Principles. Questions of the "What would you do?" type are asked to test the ability of pupils to apply knowledge of health principles to everyday situations.
4. Points of View on Consumer Health. Lists of statements which reflect various concepts and points of view concerning consumer health practices are presented to pupils with the request that they identify those statements which most nearly represent the practices and views of a well-informed consumer.
5. Identification of Fraudulent and Misleading Statements. Lists of statements, both factual and non-factual, are presented to pupils. They are requested to distinguish those statements which most likely would be made by a medical "quack" from those which probably would represent the statements of a reputable health adviser.
6. Matching Items. Pupils are asked to match the names of the various specialized fields of medicine that are listed in one column with corresponding medical functions listed in a second column.
7. Interpretation of the Facts. Pupils are asked to interpret and to evaluate the information appearing on Sample labels of drug, food, and cosmetic products.
8. Analysis of Attitudes Toward Self-Medication. Pupils are asked to state whether they agree or disagree with various statements concerning practices of self-medication and self-diagnosis.
9. Identification of Reliable Sources of Information. Pupils are requested to identify reliable sources of information regarding possibly fraudulent consumer health practices.

B. Performance of Classwork

1. Performance Checks. Pupils are presented with problem situations involving the selection of health products to determine their ability to make decisions based on wise consumership.
2. Oral and Written Reports.
3. Contributions to Committee and Class Discussions. Pupils are asked to rate the contributions of committee members with whom they are working.

C. Pupil Self-Appraisal

UNIT VII

SAFETY AND FIRST AID

I. SCOPE OF THE UNIT

Accident prevention is the primary purpose of instruction in safety and first aid. Accidents are a leading cause of death among persons of all age groups. Therefore, the objectives of this unit are directed toward helping pupils to develop:

An awareness of safety hazards in the home, at school, and in the community.

A sense of responsibility for the safety of others.

An understanding concerning what to do in case of an accident or sudden illness.

The suggested time allotment for completing this unit is one to two weeks. Modification of this time schedule should be based on pupil needs. Teachers should select from the range of activities suggested those which are best suited to the capacities and interests of individual classes.

II. CONCEPTS TO BE DEVELOPED

Developing an awareness of safety in the home, at school, and in the community is an important aspect of accident prevention.

A. Why is there a need for accident prevention programs to be directed toward young people?

Accidents are the leading cause of death among young people.

Accidents usually do not "just happen;" in most cases, they are caused.

A large proportion of accidents occur in the home.

The highest rate of school accidents occurs among pupils in the junior and senior high school.

Accident prevention measures in sports and recreational activities require mature judgment as well as competencies in basic skills.

Emotional upsets may be involved in the causes of accidents.

B. What procedures should be followed in case of emergency?

Obtaining necessary assistance in emergencies requires accurate reporting procedures.

The administration of necessary first aid to the victim of an accident or sudden illness may save his life.

Emergencies requiring immediate first aid include severe bleeding, asphyxia, and poisoning.

Control of bleeding and protection against infection should be primary considerations in the first aid care of wounds.

Shock, a condition resulting from the failure of a sufficient supply of blood to circulate through the body, is likely to accompany any serious injury or illness.

For cases involving asphyxia, mouth-to-mouth breathing is the most effective method of manual resuscitation.

In most cases involving poisoning, administer fluids (the container found near the victim should be saved for identification purposes).

The first aid for injuries resulting from heat or cold is to treat for shock, relieve pain, and prevent contamination.

For injuries involving sprains, dislocations, and suspected fractures, the injured body part should be immobilized and medical attention should be obtained.

III. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

Lists of suggested activities and reference materials appear on the following pages.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
Developing an awareness of safety in the home, at school, and in the community is an important aspect of accident prevention.	Discuss the need for accident prevention programs to be directed toward young people. Point out that approximately 10,000 children between the ages of 1 and 14 die each year as the result of accidents. More young people die each year from accidents than from any other single cause.	Scott, Foresman Series. Book Seven. pp. 134-144.
A. Why is there a need for accident prevention programs to be directed toward young people?		
Accidents are the leading cause of death among young people.	Devise descriptions of common situations wherein a safety hazard exists to illustrate how accidents usually occur. Ask pupils to describe how accidents might result through carelessness in the following situations:	
Accidents usually do not "just happen;" in most cases, they are caused.	-- Riding a bicycle in heavy traffic -- Crossing a busy intersection -- Riding in a crowded car -- Cooking dinner -- Using a power lawn mower -- Having a party without adult supervision -- Answering the telephone while cooking or ironing -- Learning to surf ride or to skin dive -- Hurrying to get to school on time	
	Instruct pupils to define the word "precaution." Discuss why the term is used in connection with safety education. Request that class members describe the characteristics of a person who is "safety conscious."	

UNIT VII. SAFETY AND FIRST AID

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why is there a need for accident prevention programs to be directed toward young people? (cont.) A large proportion of accidents occur in the home.	List on the chalkboard some of the competencies which pupils acquire in junior high school that require the learning of new skills and safety knowledge. Why is it important to obtain instruction about a mechanical device before attempting to operate it? Why are rules important? Discuss the need of learning to recognize potential safety hazards in and around the home. Point out that approximately half of all fatal accidents happen at home. Make a class survey regarding home accidents to point out the kinds which occur most frequently.	Scott, Foresman Series. Book Seven. pp. 140-143.

Prepare a display of common household tools. Appoint pupil committees to develop lists of safety guides for working with

-- Hand tools
-- Garden tools
-- Electrical equipment
-- Power tools
-- Kitchen equipment and utensils
-- Disinfectants, insecticides, and laundry chemicals
-- Flammable fluids (waxes, polishes, turpentine, paint thinner, dry-cleaning fluid, and charcoal "starter" fluid)
-- Medicines and drugs

Identify the hazards that discarded household items and equipment present to small children (plastic bags, refrigerators, and poisonous substances). Ask pupils to list the ways in which they may help to protect the safety of babies and small children.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why is there a need for accident prevention programs to be directed toward young people? (cont.)	Demonstrate proper methods of lifting and carrying objects. Discuss the dangers of inadequate electrical wiring and of overloading of circuits. Appoint pupil committees to develop a home safety checklist. Suggest to class members that they use the checklist as a guide in surveying safety conditions in their own homes and yards. Request pupils to devise a suggested plan for meeting home emergencies, such as those caused by fire, storm, gas leak, power failure, and civilian defense alerts.	
The highest rate of school accidents occurs among pupils in the junior and senior high school.	Discuss the importance of learning to recognize potential safety hazards at school and en route to and from school. Point out that junior and senior high school pupils have more accidents than do elementary school pupils. Ask class members to suggest several reasons for the difference in accident rates. Determine from school records the number and kinds of accidents that occur in various classrooms, in the halls, and on the playground. Assign pupils to prepare graphs and posters to illustrate the reports. Use the graphs and charts to compare the accident rates for different school activities, for different periods of the school day, and for different months of the school year.	Los Angeles City Schools. Accidents to Pupils and Employees. (Annual report for 1966-67 available after Sept. 1, 1967.) Scott, Foresman Series. Book Seven. pp. 145-146.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why is there a need for accident prevention programs to be directed toward young people? (cont.)	Appoint groups of pupils to demonstrate unsafe actions which may lead to accidents in various classrooms, in the gymnasium, on the playground, and en route to and from school. Ask class members to analyze each situation and to explain what the appropriate behavior should be. Assist the class in developing a code of school safety practices.	
Accident prevention measures in sports and recreational activities require mature judgment as well as competencies in basic skills.	Ask the class to establish safety codes for swimming, boating, surfing, and skin diving. Conduct a bicycle safety check. Invite a resource person (a police officer, a game warden, or a certificated gun safety instructor) to discuss firearm safety. Assign a pupil to learn from the police department regulations which concern the use of BB guns and air rifles. Assign another pupil to determine from the fire department regulations which concern the use of fireworks.	Scott, Foresman Series. Book Seven. pp. 134-149.
Emotional upsets may be involved in the causes of accidents.	Ask pupils to describe an accident in which they were involved while worried, angry, or otherwise emotionally upset. Write the following statement on the chalkboard and request pupils to cite personal experiences which illustrate its accuracy: Haste makes waste!	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
A. Why is there a need for accident prevention programs to be directed toward young people? (cont.)	Discuss the following traits as potential safety hazards: -- Impulsiveness -- Poor judgment -- Emotional tension -- Hostility -- Resentment List several causes of fatigue. Show how fatigue can contribute to the frequency of accidents. Plot graphs and charts of accident rates involving the use of alcohol and dangerous drugs.	
B. What procedures should be followed in case of emergency?	Ask a pupil to read the dictionary definition of the term "emergency." Point out that emergencies require quick thinking as well as appropriate action. Discuss with pupils some of the reasons for holding fire and civil defense drills.	The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 1-10.
Obtaining necessary assistance in emergencies requires accurate reporting procedures.	Ask for examples of the kinds of accidents which may occur at school. Distribute to pupils copies of the school procedures for reporting an accident or sudden illness. Invite the health coordinator to discuss these procedures with pupils. Without the previous knowledge of other class members, help a pupil committee to plan the enactment of a mock accident. Immediately afterward, instruct class members to write answers to the following questions: -- Where did the accident occur? -- How did the accident happen? -- What are the names of the pupils involved? -- What is the extent of the injuries? -- Where are the victims now?	Scott, Foresman Series. Book Seven. pp. 150-151.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What procedures should be followed in case of emergency? (cont.)	Ask for examples of emergencies or sudden illnesses which may occur at home. Stress the importance of having a plan for obtaining necessary aid. Mention the emergency telephone procedure to obtain medical assistance, to call the police, or to report a fire.	
	Describe incidents involving emergencies away from home. Discuss procedures for obtaining assistance. Stress the importance of carrying a first aid kit. Discuss what items should be included in a first aid kit for use when traveling.	The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 186-189.
The administration of necessary first aid to the victim of an accident or sudden illness may save his life.	Discuss the values of first aid training. Point out that a knowledge of first aid may result in saving a life.	Scott, Foresman Series. Book Seven. pp. 154-155.
	Define first aid. Emphasize the scope and limitations of first aid procedures. List on the chalkboard and discuss the general directions for first aid. Point out that most accidents are minor and that the first aid required is obvious to a person who has completed first aid training. The sequence of action which is usually applicable in case of serious injury is as follows: -- Administer the urgently necessary first aid. -- Arrange for the victim to lie down. -- Check for injuries. -- Plan what to do. -- Ask responsible persons for assistance. -- Follow the indicated procedures.	

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What procedures should be followed in case of emergency? (cont.) Emergencies requiring immediate first aid include severe bleeding, asphyxia, and poisoning. Control of bleeding and protection against infection should be primary considerations in the first aid care of wounds.	Point out the urgency of administering first aid for injuries which involve severe bleeding, asphyxia (cessation of breathing), or poisoning--any one of which presents an immediate danger to life. Present an overview of the first aid procedures for wounds. Explain that treatment of emergency cases involving severe bleeding takes precedence over all others. Point out that most cases of external bleeding can be controlled by applying pressure directly over the wound. Ask each pupil to demonstrate the technique by using one hand to apply pressure to a "wound" on the opposite arm. Emphasize the need of using a sterile cloth over the wound to help prevent infection. When the bleeding from a wound is severe, first aid measures include the -- Application of direct pressure and elevation of the body part. -- Pressure to the supplying vessel (A tourniquet should be used only to save a person's life.) Demonstrate how blood flows in spurts through the arteries. Use a piece of rubber or plastic tubing ½ inch in diameter and about 3 feet in length. Fill the tube with water. Next, ask a pupil to take hold of one end of the tube and to press the sides together to keep it closed. Then elevate the other end of the tube. Squeeze the upper portion several times in rapid succession. The water will spurt from the top of the tube in much the same way that blood spurts from an artery.	Scott, Foresman Series. Book Seven. pp. 156-158. The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 11-20.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What procedures should be followed in case of emergency? (cont.)	Instruct pupils to locate the throbbing of the pulse at the wrist and then to try to locate it at the pressure point on the upper arm. Instruct them to apply pressure at this point and to note what happens. Use charts to indicate the pressure points of the body.	
	Demonstrate the first aid procedures for use in the event of a nosebleed.	The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 21-24.
	Relate the first aid procedures for special types of wounds requiring extra care. These include: -- Wounds that present a danger of tetanus infection -- Animal bites (mammal, reptile, insect, spider, scorpion) -- Infected wounds	
	Review briefly the procedures involving first aid care for the eyes in the event of the presence of foreign bodies.	
Shock, a condition resulting from the failure of a sufficient supply of blood to circulate through the body, is likely to accompany any serious injury or illness.	Explain the meaning of the term "shock." Point out that shock is likely to accompany any serious injury or illness. Discuss the symptoms of shock and the first aid procedures to alleviate this condition.	The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 25-31.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What procedures should be followed in case of emergency? (cont.) For cases involving asphyxia, mouth-to-mouth breathing is the most effective method of manual resuscitation.	Define the term "asphyxia." Review briefly the process of breathing. List on the chalkboard some conditions which may require the administering of artificial respiration. Such conditions may include drowning, electric shock, carbon monoxide poisoning, and choking. Discuss the purpose of artificial respiration. Demonstrate the methods used, and discuss the advantages and disadvantages of each. Point out that the "mouth-to-mouth" method is the most effective at present. Devise methods to demonstrate the technique without actually performing it on another individual. Discuss methods for using an intermediary gauze pad, cloth handkerchief, or similar material over the mouth of the victim when performing mouth-to-mouth breathing. Demonstrate the "back pressure, arm lift" method of artificial respiration. Arrange for pupils to practice this technique. Warn against applying too much pressure on the back of the victim. Demonstrate the "chest pressure, arm lift" method of artificial respiration. Devise examples of emergency problems requiring first aid for asphyxia. Appoint pupil committees to demonstrate how they would solve each emergency.	Scott, Foresman Series. Book Seven. pp. 154-155. A Supplement on Artificial Respiration to Accompany Red Cross Textbooks. American National Red Cross, 1959. pp. 1-14.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What procedures should be followed in case of emergency? (cont.) In most cases involving poisoning, administer fluids (the container found near the victim should be saved for identification purposes).	List ways of preventing accidental swallowing of poisons. Point out that poisoning is a major cause of accidental death among young children. Discuss the purpose of first aid for accidental swallowing of poisons. The procedure is to: -- Dilute -- Washout -- Refill -- Repeat (Note exceptions to this procedure in the case of caustic poisons.) Ask pupils to suggest reasons for saving the contents and labels from containers suspected of holding poisons. Assign a pupil to report on the purposes of poison control centers.	Scott, Foresman Series. Book Seven. p. 157 The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 47-54.
The first aid for injuries resulting from heat or cold is to treat for shock, relieve pain, and prevent contamination.	List the general kinds of burns, such as evidenced by: -- Reddening of the skin -- Appearance of blisters -- Destruction of body tissue State that the overall objectives of treating burn injuries are to relieve pain, to prevent contamination, and to alleviate shock. Cite the first aid procedures for the treatment of thermal burns, chemical burns, and sunburn.	The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 70-84.

CONCEPTS	ACTIVITIES AND INFORMATION	RESOURCES
B. What procedures should be followed in case of emergency? (cont.)	Study the first aid procedures for use in the event of heat stroke and heat exhaustion. List some of the signs and symptoms resulting from prolonged exposure to excessive cold. Discuss the first aid care for a person with frostbite. How can this condition be prevented? Outline and discuss survival procedures for use in desert and mountain areas.	
For injuries involving sprains, dislocations, and suspected fractures, the injured body part should be immobilized and medical attention should be obtained.	Discuss the signs and symptoms of injuries to bones, joints, and muscles. Present an overview of procedures for immobilizing an injured body part. Demonstrate the use of the following items in the first aid care of persons with sprains, strains, dislocations, and suspected fractures: -- Board splint -- Blanket splint -- Magazine and newspaper splint -- Arm sling	The American National Red Cross. First Aid. Garden City, N. Y.: Doubleday, 1957. pp. 55-69.

IV. EVALUATION

Suggested procedures for evaluation of progress toward the achievement of unit objectives include the following:

A. Tests and Inventories

1. Safety Checklist. Pupils are asked to survey safety conditions at home, at school, and in the community.
2. Application of First Aid Procedures. Questions of the "What would you do?" type are asked to test the ability of pupils to make appropriate decisions relative to an accident or sudden illness.
3. Multiple Choice Tests on Knowledge and Principles of Safety and First Aid.
4. True or False Tests on Knowledge and Principles of Safety and First Aid.

B. Classroom Performance

1. Observation of Pupil Performance

   a. Reporting of an accident or sudden illness
   b. Control of bleeding
   c. Artificial respiration

2. Participation in Panel Discussions and Group Work

APPENDIX: THE CONTINUATION OF HUMAN LIFE

Optional Resource Unit to Supplement Unit II, Growing and Maturing

I. INTRODUCTION 204
Sample Letter 205

II. CONCEPTS AND RELATED INFORMATION TO BE DEVELOPED 206

III. INSTRUCTIONAL MATERIALS 207

IV. TEACHER RESOURCE INFORMATION 207

V. QUESTIONS FOR REVIEW AND DISCUSSION 219

Supplementary Unit: Continuation of Human Life

I. INTRODUCTION

This special unit on growth and reproduction has been prepared as a supplement to Unit II. The resource unit is optional, and its use is contingent upon the approval of the school principal. The suggested time allotment is approximately one week. The following procedures are recommended for consideration in planning:

A. Solicit the cooperation and reactions of the P.T.A. regarding the introduction of this special unit of instruction.

B. Send a letter to parents of pupils enrolled in Health classes informing them of the program and requesting written permission for the pupils to participate.

C. Schedule appropriate alternate activities for pupils who do not participate.

D. Plan details of the program with staff personnel who will be involved in the classroom presentations. It is important that only staff members who are well prepared be requested to assist. Consideration also should be given to separating the boys and girls during certain phases of this instruction.

E. Invite the school physician and/or nurse to serve as a resource person.

F. Plan the use of the films Boy to Man and Girl to Woman in conjunction with this unit.

SAMPLE LETTER

Date

Dear Parents:

Beginning on _____date_____, your son or daughter will be studying special content relating to human growth and reproduction, a topic which is included in the course of study for Health. It is our belief that this important educational activity is one that is best shared by the home and the school. Therefore, you may wish to discuss this topic with your son or daughter at the same time that it is being studied at _____ Junior High School.

A special meeting to inform parents concerning the nature of the material to be included in this instruction will be held in the auditorium at _____ _____Junior High School on _____date_____ at _____. It is hoped that you will plan to attend.

Please complete the form below and return it by _____date_____.

---------- Tear-off ----------

Date

To: Edminton Junior High School
Mr. James Jones, Principal

☐ I will attend the special meeting to inform parents concerning the nature of the instruction on human growth and reproduction.

☐ I will not be able to attend the special meeting.

☐ I do wish my child to receive this instruction.

☐ I do not wish my child to receive this instruction.

Name of son or daughter _____

_____ Signature

_____

_____ Address

II. CONCEPTS AND RELATED INFORMATION TO BE DEVELOPED

Reproduction, the ability of an organism to reproduce its kind, is an important process in the continuation of human life.

A. How do the maturational changes which occur in boys and girls during puberty provide for the continuation of human life?

Changes in body size and shape as well as maturation of the reproductive system make it possible for boys to become fathers and for girls to become mothers.

B. How do the endocrine glands function in the continuation of human life?

The ovaries in the female and the testes in the male are the endocrine glands which are largely responsible for the pubertal changes that occur during adolescence.

The gonads function in the production and maturation of the gametes, the egg cell in the female, and the sperm cell in the male (ovulation, menstruation, ejaculation).

C. How does the reproductive system function in the continuation of human life?

In addition to the production of gametes, the reproductive systems function in the fertilization of the egg cell. (conception)

Nourishment and protection are provided the growing organism through the female reproductive system. (implantation, cell division, twinning, prenatal development, dangers of miscarriage and abortion)

When a baby is ready to be born, it is expelled from the mother's uterus through the vagina, or birth canal. (normal birth process, Caesarian section)

D. Why is the family unit important in the continuation of human life?

In our society, care and protection of the new-born baby is provided through the family unit. (role of family members)

E. What are the responsibilities of adolescents in achieving emotional maturity in boy-girl relationships?

Developing self-confidence in situations involving members of the opposite sex is an important step toward achieving maturity. (purposes and considerations in dating behavior)

III. INSTRUCTIONAL MATERIALS

Textbook: Scott, Foresman. The Human Story. (Average--Above Average)
Harper & Row. Human Reproduction. (Average--Below Average)

Films: Boy to Man
Girl to Woman

IV. TEACHER RESOURCE INFORMATION

A. How do the maturational changes which occur during puberty provide for the continuation of human life?

Changes in body size and shape as well as maturation of the reproductive system make it possible for boys to become fathers and for girls to become mothers.

Adolescent Pubertal Changes *

In Boys	In Girls
Growth in height and, later, in weight. Development of a "physique," with broadening of the shoulders and narrowing of the hips.	Growth in height and, later, in weight. Development of a "figure," with rounding of the hips and the breasts.
Increase in the size of the penis and testicles.	Development of pubic and underarm hair.
Development of pubic and underarm hair.	Ripening and release of mature ova, each of which is capable of being fertilized by a sperm cell to create a new life
Production and ejaculation of millions of tiny sperm, each of which is capable of uniting with an ovum in the female to create a new life.	

*This section on adolescent pubertal changes is repeated to provide a logical transition for introduction of the topics to be taught in this supplementary unit.

IV. TEACHER RESOURCE INFORMATION (cont.)

B. How do the endocrine glands function in the continuation of human life?

The gonads, the ovaries in the female, and the testes in the male are the endocrine glands which are largely responsible for the pubertal changes that occur during adolescence.

The gonads also function in the production and maturation of the gametes, the egg cell in the female, and the sperm cell in the male.

Role of the Endocrine Glands in Growth and Maturation

Several of the many different hormones secreted by the pituitary gland stimulate other endocrine glands, mainly the gonads, to produce the hormones which are responsible for the growth and maturational changes leading to manhood and womanhood.

1. Pituitary Gland (anterior lobe)

Growth Hormone (Somatotrophin). This hormone regulates skeletal growth, or height.

Gonadotropic hormones. Two pituitary hormones are responsible for triggering the maturational changes which occur at puberty:

One hormone (FSH) initiates ovulation and the menstrual cycle in the female and sperm production in the male.

The other hormone (LH) stimulates the ovaries and testes to secrete hormones called estrogens and androgens. These are responsible for the development of the secondary sex characteristics.

IV. TEACHER RESOURCE INFORMATION (cont.)

B. How do the endocrine glands function in the continuation of human life? (cont.)

2. The testes (male sex glands)

The testes consist of two oval-shaped glands which are suspended from the groin of the male in an external sac of skin called the scrotum. The testes are considered both endocrine and exocrine glands because they serve the following important functions:

a. Secretion of hormones (chiefly testosterone). These are responsible for the secondary sex characteristics in the male.

b. Production of spermatozoa. The sperm cells are produced and stored in the tiny tubules which are contained in each testis. Although mature sperm are not produced until puberty, the sperm cells from which they are derived are formed during the embryonic stage. Millions of the microscopic, tadpole-like sperm are discharged in the form of semen from the erect penis during ejaculation.

3. The ovaries consist of two almond-shaped glands which are located in the pelvis of the female. The ovaries are considered both endocrine and exocrine glands because they serve the following important functions:

a. Secretion of hormones. These are responsible for the secondary sex characteristics in the female and for the menstrual cycle.

b. Release of mature egg cells. The ovaries are made up of small groups of cells called follicles. Each tiny egg cell is contained within a follicle. Approximately once a month, one egg cell ripens within a follicle and is released from the ovary. Although the ovaries contain thousands of potential egg cells at birth, approximately 400 egg cells are released between the ages of about 12 to 45-50, usually 1 cell at a time. These are issued alternately from each ovary every 28 days. After its release, the mature egg cell passes into the Fallopian tube.

IV. TEACHER RESOURCE INFORMATION (cont.)

B. How do the endocrine glands function in the continuation of human life? (cont.)

c. Production of a hormone (progesterone) which prepares the uterus to receive a fertilized egg. Immediately following the release of the egg cell, the follicle secretes a hormone to provide for the nourishment of the egg cell should it be fertilized. This hormone serves several important functions, including the following:

- Prevention of another egg from ripening within the ovaries until the onset of the next ovulary cycle.
- Thickening of the uterine lining in preparation for reception of the egg cell should it be fertilized.
- Cessation of menstruation and ovulation during pregnancy.

If the egg cell is not fertilized, the uterine lining sloughs off, and menstruation occurs. The menstrual flow, which usually lasts from three to five days, is a normal periodic discharge of an unfertilized egg cell, of the uterine lining and a small amount of blood from the female's body.

The Menstrual Cycle

Day	
1 - 4	Menstruation
5 - 12	Activation and growth of the egg-containing follicle; thickening of the uterine lining
13 - 14	Eruption of the egg cell from the ovarian wall into the Fallopian tube
15 - 20	Passage of the egg cell down the Fallopian tube to the uterus
21 - 28	Degeneration of the uterine lining if fertilization has not occurred

IV. TEACHER RESOURCE INFORMATION (cont.)

C. How does the reproductive system function in the continuation of human life?

In addition to the production of gametes, the reproductive systems function in the fertilization of the human egg cell.(conception)

Overview of the Male Reproductive System

The male reproductive organs consist mainly of the penis, scrotum, and testes.

Penis. This is the external sex organ of the male which contains the passageway for urine and semen. The passage is called the urethra. The penis is composed of columns of spongy tissue which become engorged with blood during sexual excitement. Sometimes erection also may result from a full bladder. Ordinarily, the penis is soft and flaccid. A loose skin, called the foreskin or prepuce, covers the head of the penis to the urethral opening. This foreskin is usually removed by minor surgery shortly after birth. The head, or glans penis, contains sensory nerve endings which make it extremely sensitive.

Scrotum. This is the sac-like structure back of the penis in which the testes are suspended. This muscular pouch provides protective storage for the heat-sensitive sperm cells, thus guarding against sterility.

Seminal Duct. This is the passageway leading from the coiled tubes of the testes to the urethral opening which is located in the penis. As sperm cells travel along the seminal duct, they combine with secretions from various glands (seminal vesicles and prostate gland) to form semen.

Urethra. This is the passageway in the penis through which both sperm cells in the form of semen and urine from the bladder leave the body. However, urine and semen do not leave the body at the same time.

Seminal or Nocturnal Emission. The normal discharge of semen from the penis during sleep is called a seminal emission, or "wet dream." This is nature's way of removing the excess sperm cells that continuously are being produced and stored in the seminal duct. Although medical authorities state that masturbation is not harmful, this practice is not necessary for the ejaculation of stored sperm cells.

IV. TEACHER RESOURCE INFORMATION (cont.)

C. How does the reproductive system function in the continuation of human life? (cont.)

Overview of the Female Reproductive System

The female reproductive organs are located inside the body and consist mainly of the ovaries, Fallopian tubes, uterus, and vagina.

Ovaries. These function in the production and maturation of the egg cell and in the secretion of hormones.

Fallopian tubes. These tubes provide a passageway for conducting the egg cell from the ovaries to the uterus. The funnel-shaped outer ends (fimbria) help to guide the egg cell into the tube following its eruption from the ovary. The two tubes which lie in a horizontal line above the ovaries are lined with tiny, hairlike cilia, which move the egg toward the uterus.

Uterus. This is a pear-shaped, muscular organ which is suspended by ligamentous bands between the ovaries. It provides protection and nourishment for the fertilized egg and is capable of stretching several times its normal size in order to accommodate the growing egg cell through its embryonic and fetal development. The upper portion is called the fundus. The lower portion, or neck, which opens into the vagina, is called the cervix.

Vagina. This is the muscular passageway leading from the cervix, or neck, of the uterus to the outside of the body. The vaginal opening is located between the urethra, the tubular passageway for the excretion of urine, and the anus. At birth, the opening of the vagina is partially covered by a membrane, called hymen, which is easily torn or broken.

Vulva. The folds of skin and membranous tissue which form the external sex organ of the female are called the vulva.

Clitoris. This is located in the upper part of the vulva in front of the urethral opening. It is composed of sensory nerve tissue which make it extremely sensitive.

IV. TEACHER RESOURCE INFORMATION (cont.)

C. How does the reproductive system function in the continuation of human life? (cont.)

Fertilization of the Egg Cell (Conception)

Fertilization occurs through the union of an egg cell and a sperm cell within the mother's body to form a new human life.

This is accomplished through mating, or sexual intercourse. The spongy tissue of the penis becomes engorged with blood during sexual excitement, causing the penis to become erect. The erection enables the penis to penetrate the vagina during mating. The semen which is ejaculated from the erect penis contains millions of mobile sperm, each of which is capable of uniting with an egg cell to begin a new human life. The sperm cells deposited in the vagina move up the uterus into the Fallopian tubes. Fertilization takes place when an egg cell moving toward the uterus is penetrated successfully by a sperm cell. The determination of hereditary traits and the process of cell division begin with the union of egg and sperm. Identical twins have the same hereditary characteristics because they result from the union of a single egg and a sperm cell. Fraternal twins result from the union of two egg cells and two sperm cells. The fertilized egg cell moves down the Fallopian tube into the uterus. Here, the fertilized ovum implants itself into the uterine wall, which has become enriched with a supply of blood and lymph to nourish it.

Development of the Fertilized Egg Cell, from Conception to Birth

Nourishment and protection are provided the growing organism through the female reproductive system.

Immediately following fertilization, the ovum divides into two, four, eight, and other multiples to form a cellular mass. It then develops into a hollow ball with a small mass of cells at one end. After several days, the zygote implants itself into the wall of the mother's uterus, where it grows and develops for approximately 280 days, or 9 months. Cell division and differentiation continue. These processes create three special cell layers from which all the tissues and organs of the body are formed; the amnion, the sac which surrounds the embryo; and parts of the placenta.

IV. TEACHER RESOURCE INFORMATION (cont.)

C. How does the reproductive system function in the continuation of human life? (cont.)

Until birth occurs, the developing infant receives nourishment through two special structures: the placenta, a flat spongy structure that grows along the wall of the uterus during pregnancy; and the umbilical cord, the attachment between the fetus and the placenta. An interchange of nutrients and oxygen from the mother's blood and of waste products from the infant's blood takes place through the process of diffusion. Babies born prior to the eighth month of pregnancy are called premature. If for some reason the developing baby is expelled from the uterus before it is able to survive, the pregnancy ends in what is called a miscarriage, or spontaneous abortion, Procedures to eliminate the developing baby through surgical means are called an induced abortion. This is a surgical operation requiring hospitalization and the services of a competent medical doctor. Abortions are legal in some states under certain conditions, mainly for medical reasons. In all other instances, induced abortion is illegal. It usually is performed by persons other than a licensed medical doctor and under conditions which may present a threat to the mother.

The Birth Process

When the baby is ready to be born, the muscular walls of the uterus begin to contract. These discomforting contractions are called labor pains and are a sign that the birth process has begun. Another sign is the breaking of the bag of water, the fluid-containing amniotic sac which surrounds the fetus.

The contractions at the upper end of the uterus move the baby downward into the vagina, or birth canal. Usually, babies are born in a head-first position. When a baby is born feet first, it is referred to as a breech birth. In some situations which may present a threat to the health of the baby or the mother, the baby is delivered through an incision in the abdominal wall of the mother. This surgical operation is referred to as a Cesarean section.

The three stages of the normal birth process may be summarized as follows:

Dilation or opening of the cervix (neck of the uterus). Rhythmic uterine contractions increase in frequency and intensity to permit passage of the infant from the uterus into the birth canal.

IV. TEACHER RESOURCE INFORMATION (cont.)

C. How does the reproductive system function in the continuation of human life? (cont.)

Birth of the infant. The expulsion of the infant from the birth canal.

Expulsion of the placenta. This is the afterbirth, which is discharged shortly following the birth of the infant.

D. Why is the family unit important in the continuation of human life?

In our society, care and protection of the new-born baby is provided through the family unit.

Role of the Family Unit

The family is the basic social unit in our society. Families are started through the marriage of mature men and women who are in love and who are ready to accept the responsibilities of family life and eventual parenthood. Babies are conceived through mating, an expression of deep physical love which is an important aspect of the marriage relationship. Most couples have a child during the first or second year of their marriage.

Both the father and the mother have an important role in the family relationship and in providing love, care, and protection for their children.

Many married couples who for some reason cannot become parents themselves adopt children. In this way, many children born out of wedlock who might have been deprived of the love and protection of a stable family are able to have parents who want them and who are able to care for them. However, a number of these babies are not adopted. Most teenage boys and girls who marry because of pregnancy are not prepared to carry out the responsibilities of family life and parenthood. For obvious reasons, these marriages have little chance for success.

IV. TEACHER RESOURCE INFORMATION (cont.)

E. What are the responsibilities of adolescents in developing maturity in boy-girl relationships?

Developing self-confidence in situations involving members of the opposite sex is an important step toward achieving maturity.

Purposes and Considerations in Dating

In our society, dating serves as a preliminary but important step in the eventual selection of a marriage partner. Young people are dating at an earlier age than they did several generations ago. Greater responsibility is being placed on them because of this new freedom. In dating situations, boys and girls must assume responsibility for their own actions.

Age. The age at which boys and girls should begin to date is dependent upon a number of factors, including readiness for dating, attitudes of parents, community customs, and the nature of the dating activity. For example:

Parties which include both boys and girls with no special pairing of couples
Special event or activity which includes several couples, such as a beach party
Two or three couples attend a special event (double or triple date)
Single date, in which boy invites girl to a movie or dance

Planning the date. Answers to such questions as the following:

With whom shall the date be planned?
What is the nature of the date?
Where is the activity to be held?
What are the arrangements for transportation?
At what time will the activity end?
Have parents granted permission?
What financial arrangements have been made to cover the expenses of the date?

IV. TEACHER RESOURCE INFORMATION (cont.)

E. What are the responsibilities of adolescents in developing maturity in boy-girl relationships? (cont.)

Dating etiquette. Good manners on a date, or in any other social situation, involve the following:

Showing consideration and kindness toward others
Being a courteous listener
Having a sense of humor
Being groomed properly and neatly
Being gracious

Choosing a date. Following is a list of characteristics mentioned most frequently by both boys and girls as important factors in selecting a date:

Pleasant and cheerful personality
Attractiveness
Friendliness and sincerity
Good manners
"Fun to be with" and possession of a sense of humor
Ability to be a "good sport"
Enjoyment at activities in which other boys and girls of the same age participate
Ability to act naturally
Neatness of appearance
Considerate

Dating Behavior

Public display of affection. Such a display is considered poor taste for a number of reasons, including the following:

It may be harmful to the girl's reputation.
It may indicate that one or both members of the couple is insecure or overly possessive.
It may be embarrassing to other persons.

IV. TEACHER RESOURCE INFORMATION (cont.)

E. What are the responsibilities of adolescents in developing maturity in boy-girl relationships? (cont.)

Necking and petting. Holding hands and the good night kiss usually are expressions that are a part of dating. However, behavior which involves prolonged kissing, fondling, and petting may have serious consequences because these are love-making patterns preliminary to mating or sexual intercourse. Such acts evoke strong emotional feelings and urges that are difficult to control. Although boys are aroused more quickly than girls, the drive for sexual gratification is inherent to both. Once both the boy and the girl are aroused, the sexual drive is difficult to control. For this reason, heavy necking and petting lead to emotional and physical frustration when stopped.

Sexual intercourse before marriage. There are a number of reasons why premarital sexual intercourse is not appropriate behavior for teenagers:

In many cases, premarital sexual intercourse among teenagers eventually leads to pregnancy. Pregnancy outside marriage not only creates problems for the girl and the boy, but it also involves the future life of a child. The future goals of the girl, and perhaps of the boy, are interrupted or destroyed because of this new responsibility.

Moral standards form the basis by which persons are judged. Persons who break moral codes risk their reputations and standing among classmates, as well as among parents, employers, and other adults. Young people become "typed" on the basis of their behavior.

Mature love involves mutual respect and the ability to assume responsibility for the individual with whom a person is in love. Mature love promotes the desire to share with another person, not the desire to take advantage of him nor her.

V. QUESTIONS FOR REVIEW AND DISCUSSION

1. During what age range do girls usually reach puberty? During what range does puberty occur in boys?
2. What function do seminal emissions, or "wet dreams," perform?
3. Approximately how often does a woman menstruate?
4. What causes the menstrual flow?
5. When does human life begin?
6. In what part of the reproductive organs does fertilization usually take place?
7. How long after ovulation does an egg usually remain the Fallopian tube?
8. Approximately how many sperm cells may be released by the male at one time?
9. Who determines the sex of a baby, the father or the mother?
10. How is an embryo nourished?
11. What is the normal period of time that is necessary for a baby to grow in the uterus?
12. What is a premature baby?
13. What is a miscarriage?
14. What is a Caesarean birth?
15. How do identical twins differ from fraternal twins?
16. What are some of the important responsibilities which a boy and girl must accept when dating?

V. QUESTIONS FOR REVIEW AND DISCUSSION (cont.)

17. What factors should be considered in planning a date?

18. What are the dangers involved in necking and petting?

19. What vital functions, necessary for all life, are carried on in the uterus during prenatal growth and development of a baby?